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ABSTRACT

A perspective is given and recommendations are made for restructuring education personnel development with major emphasis on preservice teacher education. Issues facing teacher education are put in a socio-historical context. It is stated that teacher training has been largely separated from the public school system, and that training has been overloaded with pedagogical theory before the prospective teacher's experience is broad enough to absorb it. The potential institutional arrangements required for a professional school of pedagogy are examined. A proposed program in pedagogical education is presented, with its focus on the ability to do the job for which training is given. This program is mainly field-based with the campus serving for basic field preparation. Types of knowledge are identified and their characteristics discussed by showing how each type functions in teaching behavior. What is known about how to teach skills and concepts to teachers is delineated. The final section presents ways to bring about the proposed changes. The role and responsibilities of college faculty and what sort of coalitions will be necessary to effect new policies and programs of pedagogical education are discussed. (JD)

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Publication No. E-80-42000

A Design for a School of Pedagogy

by
B. Othanel Smith

in collaboration with
Stuart H. Silverman, Jean M. Borg,
and Betty V. Fry

U.S. DEPARTMENT OF EDUCATION
Shirley M. Hufstedler, *Secretary*

3

OCT 2 8 1980

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The Department of Education is dedicated to fostering and encouraging a devotion to excellence in every aspect of education in this country.

From the first whispers of independence to the brilliant, extended Constitutional debates about the best form of government for a free people, education was understood by all to be the cornerstone of successful democracy in America.

Thomas Jefferson said it best: "If a nation expects to be both ignorant and free....it expects what never was and never will be."

The key to educational excellence is teaching. Therefore, we must examine the quality of teacher training, the kinds of incentives that teachers are offered to improve their skills and to enhance their own feelings of worth, dignity, and achievement. A good place to begin is a definition of the issues. Dr. Bunnie Othanel Smith has had over 50 years of experience in the field of teacher education. Dr. Smith's work is a fine prologue to discussion.

Shirley M. Hufstedler

FOREWORD

Education in the United States has finally achieved Cabinet-level status. A Department of Education will soon be established (and, in fact, will already be established when this book is published).

> "It will be a Department," in the words of Secretary Shirley Hufstedler, "that strives unceasingly for the highest possible quality at every level of the education process; a Department that seeks out models of success, of excellence, and holds them aloft for all to see."

Such a statement offers both a challenge and a commitment, and sets an inspirational tone for the new Department. The time is ripe for our entire educational enterprise to make great strides. And it is ready to do so.

Foremost among the areas in which education is ready to advance is the field of teacher education. This is a welcome and healthy sign, because there is a direct link between the quality of education and training of our Nation's school personnel and the excellence we seek in the education of our children.

A golden opportunity exists today for restructuring teacher education. We must take advantage of this opportunity. Timing is a crucial factor, and conditions at present are too favorable to ignore. If we act now, we will generate momentum—momentum that may otherwise be lost for a generation.

It is imperative that we set a perspective and develop recommendations to meet this challenge involved in restructuring education personnel development. In this connection ***A Design for a School of Pedagogy*** provides an invaluable contribution that will stimulate thinking not only among professional educators but by the public at large. The author, Professor B. Othanel Smith of the College of Education of the University of South Florida—along with his collaborators, Stuart H. Silverman, Jean M. Borg, and Betty B. Fry—merit high marks indeed for this outstanding work.

Starting with the institutionalization of teacher education, the book, in Part One, indicates where we are and how we got there. It states the issues and puts them in a socio-historical context. It discusses the fact that teacher training has been largely separated from the public school system, and that training has been overloaded with pedagogical theory before the prospective teacher's experience is broad enough to absorb it.

Among the questions explored are these: Is teacher education a graduate study? At what collegiate level should teacher education be offered? Who should train teachers? Is academic work necessary for effective training? Then, making a forceful case for using the term "pedagogy" to refer to the science and art of teaching, the book examines the potential institutional arrangements required for a professional school of pedagogy. Also presented is a proposed program in pedagogical education, with a recommendation that pedagogy be treated as a postbaccalaureate study leading to a master's degree and that it focus on the ability to do the job for which training is given. For this purpose, the program is mainly field-based with the campus serving for basic field preparation.

In Part Two the nature, types, and uses of pedagogical knowledge are examined. The author and his collaborators present pedagogy's present knowledge base and help to increase confidence in what we know and can do. Types of knowledge are identified and their characteristics discussed by showing how each type functions in teaching behavior. The distinction is also drawn between the use of knowledge as the content of

training in school, classroom procedures and techniques and knowledge as a guide to the formulation of school policies. This sets the stage for exploring further how much knowledge and what kind of knowledge a teacher needs to be effective and looks at the differences among primary, intermediate, and high school teachers. The book then delineates what is known about how to teach skills and concepts to teachers, and discusses a need for assembling and organizing generic clinical knowledge and a way to accomplish this.

Part Three discusses ways to bring about the changes proposed. How can this be accomplished? What can college faculty do and what sort of coalitions will be necessary to effect new policies and programs of pedagogical education? The challenge is raised, the need presented, and the possibility held open.

Ten years ago Bunnie Smith's *Teachers For the Real World* made a marked impact on our thinking and on education programs throughout the country. In this book, he again stimulates us to think and to act. Will we continue to restrict our thinking about the college of education to what it is—or to what it can be? Whatever position we take, the question is an important and timely one, worthy of exhaustive exploration. I applaud Professor Smith for giving us an opportunity to explore anew.

April 1980

William L. Smith
Commissioner
U.S. Office of Education
Washington, D.C.

PREFACE

In the fall of 1977, at a meeting of the Task Force on Demonstration for the National Teacher Corps, it was asked whether the knowledge base of pedagogy was sufficient to underwrite any significant demonstration. Some members of the Task Force were of the opinion that our knowledge, especially that related to instruction, was not only fragile but inadequate. We did not share this view then, nor do we share it today.

Shortly after the Task Force completed its work, Teacher Corps authorized us to do a study of pedagogical education including its knowledge base and the relation of that knowledge to the training of pedagogical personnel. It was anticipated that such a study would be useful to Teacher Corps projects and colleges of pedagogy.

We began our work with a review of the various studies of pedagogical education, dating back to the early decades of this century. The latest of these studies, *The Report of the Bicentennial Commission on Education for the Profession of Teaching*, opens up many more questions than the question of the adequacy of knowledge. It identifies and explores most, if not all, of the major issues of pedagogical education in the United States. Its recommendations are fundamental but brief.

We have attempted to expand upon some of the recommendations of the Bicentennial Report by developing the outlines of a plan for the reform of pedagogical schools, a plan based on the belief that schools of pedagogy can now become genuine professional schools; that the program of professional preparation must be completely overhauled; and that the knowledge base for the scientific grounding of the pedagogical arts is now available and increasing.

We hope that the plan herein proposed will not only stimulate thinking and discussion of the problem of designing a genuine professional school of pedagogy but also lead to action by the deans of pedagogical schools, professional organizations, and civic leaders.

The reader who is interested in the nature and use of knowledge in the training of educational personnel should turn to Part II. Those who wish to see the outlines of the program before becoming familiar with the content and its uses will of course read the chapters in order, although parts of the program become more meaningful after Part II has been read.

We had planned from the very inception of the project to consult with a number of people at various stages of our work. This proved to be fortunate, for the suggestions and criticisms from leaders in pedagogical education, in both schools and colleges, expanded and sharpened our conceptions and helped to define the scope of our undertaking.

The first conference was held at the University of South Florida, December 11-13, 1978. This conference considered a wide range of issues covering almost every aspect of pedagogical education. Participants in the conference were Robert Ardike, Special Assistant to the Commissioner of Education and formerly Associate Director, National Teacher Corps; W. F. Connell, Professor Emeritus, University of Sidney, Australia; William Drummond, University of Florida; Robert Edwards, Principal, Youth Opportunity School North, Miami; David Gliessman, Indiana University; Gene Hall, University of Texas; Beverly Kelton, University of Hartford; Suzanne Kinzer, University of Florida; Donald Orlosky, University of South Florida; Donovan Peterson, University of South Florida; Kevin Ryan, Ohio State University; and William Smith, Commissioner of Education and formerly Director, National Teacher Corps.

The second conference convened three months later in Washington, D.C., on March 12-13, 1979. This conference dealt with questions somewhat more specific than those at the first conference. Two or three chapters were prepared in rough form and sent to participants in advance of the meeting. We thus had the advantage of specific reactions to both content and discourse as well as extended discussion of new issues, further sharpening our sense of direction and limiting the scope of our undertaking. Those who participated in the conference were Robert Bush, Stanford University; Asa Hilliard, San Francisco State University; Beverly Kelton, University of Hartford; Margaret Lindsey, Professor Emeritus, Teachers College, Columbia University; James Tanner, Cleveland Public Schools; and William Smith, Commissioner of Education and formerly Director, National Teacher Corps.

An intensive three-day discussion was held with Margaret Lindsey and David Gliessman, May 2-5, at the University of South Florida, which served to clarify our notions of training domains and the place of research training in programs of pedagogical education as well as such concepts as institutional autonomy and the role of outside agencies affecting schools of pedagogy.

In June, the first draft of the manuscript was submitted to a number of individuals who had attended the conferences and to others. Those who read and criticized the manuscript were Dwight Allen, David Berliner, Walter R. Borg, Robert Bush, David Clark, Alan Gartner, Gene Hall, Kenneth Henderson, Asa Hilliard, Margaret Lindsey, Daniel Purdom, Maynard Reynolds, Kevin Ryan, Lester Tuttle, Roger Wilk, and Elaine Witty. To these individuals we owe special gratitude. To read a manuscript is itself a chore but to criticize it thoroughly, as everyone did, shows a commitment to our field that one will not forget. The comments of these readers forced us to restructure the manuscript, delete parts of it, expand others, and to clarify many points we had slurred over.

We are especially indebted to Margaret Lindsey for her thorough criticism of the manuscript at different stages of its development, for her insistence upon clarification of concepts and her insightful analysis of the various components of teaching. Had we been able to take advantage of all her suggestions, the book would have been much the better. She, of course, is not responsible for whatever shortcomings are to be found in the pages that follow.

We wish also to express our deep appreciation to William Smith, U.S. Commissioner of Education, for his continuing insight into the problems of pedagogical education as manifested in his intellectual, moral, and administrative support of our work, and to Robert Ardike, Special Assistant to the Commissioner, for his help at almost every step toward completion of this project.

To all these and many others who provided us with information through their research, writing, and informal discussion we owe more thanks than we can ever pay in person.

March 1980

B. Othanel Smith
Clearwater, Florida

CONTENTS

Page

Letter From the Secretary iii
Foreword v
Preface vii
Chapter
1. Introduction 1

PART ONE
Institutional Alignment and Programs

2. Professional Status of Pedagogical Schools 11
3. Toward a Professional School of Pedagogy 17
4. Preprofessional Education: Outlines of a Program 31
5. Toward a Program of Pedagogical Education 39

PART TWO
Pedagogical Knowledge

6. Attitudes Toward Pedagogical Knowledge 49
7. Pedagogical Knowledge: Its Forms and Uses 59
8. Academic Pedagogical Knowledge: Its Nature and Utility 69
9. Teaching and the Domains of Training 79
10. A Profile of Generic Knowledge for Pedagogical Training 89
11. A Profile of Specific Knowledge for Pedagogical Training 101

PART THREE
How to Get There

12. Memo on the Problem of Getting There 107
Index 115

Chapter 1

Introduction

For over 50 years pedagogical education has been a concern of teacher educators, academic scholars, researchers, and laypersons. In surveys and reports, individuals and organizations have presented plans and courses of action to improve programs for educating and training the nation's school personnel.

A Parade of Surveys and Reports

Among the first of these was the Commonwealth Teacher-Training Study published in 1929.[1] Perhaps the most extensive and thorough exploration ever made of what teachers do, this study consisted of an analysis of over 200,000 statements of teacher activities. The statements were analyzed and the activities classified into six categories: instruction, management, extra classroom activities, administrative relations, personal and professional advancement, and activities concerning supplies and plant. These activities were evaluated and put forth as a basis for developing a functional pedagogical curriculum. Whatever the shortcomings of activity analysis as a mode of curriculum development, this study still stands today as perhaps the only comprehensive and objective effort to provide a functional basis for pedagogical education.

Only 4 years after the Commonwealth Study was published the United States Office of Education issued its extensive survey of the education of teachers.[2] Among other things, the National Survey described better practices in teacher education and in recruitment and selection, and recommended the development of curriculums for various types of positions. It urged competence in the skills of teaching as a primary objective.

Some 10 years later, in 1944, the American Council on Education issued the first volume of its Commission On Teacher Education under the little *Teachers for Our Times*,[3] followed two years later by the second volume *The Improvement of Teacher Education*.[4] The main purpose of the Commission was neither to make a factual survey nor to conduct research, but rather to stimulate institutions to improve their programs. Impelled by ideological considerations and by an urgent feeling of need to improve pedagogical education, it emphasized the contemporary social scene and the democratic way of life as points of orientation, urging that teachers become sensitive to the school's relation to social realities and ideals. The Commission also emphasized the socio-civic responsibilities of teachers. While it advanced no design for pedagogical education, the Commission did urge that each institution develop an effective program along the general lines suggested in its reports.

These three studies and reports, like the ones to follow, reflect the temper of their time. In the closing years of the 1920's, the Nation was not yet aware of the impending transformations the Great Depression would make in the public mentality. Researchers and scholars alike could still think in detached, objective ways, although a few seers were sending out warning signals of the shoals ahead. Collecting, ordering, and analyzing data from surveys of one sort or another was the prevailing approach to the study of educational problems, and the Commonwealth Study and the National Survey reflected this social aloofness.

However, the depressing years of the 1930's changed all this to an alarming degree. Ideologies became rampant. Communist, fascist, democratic, socialist, and technocratic ideologies emerged or took on new life, offering their particular solutions to the Nation's problems if not those of the world. Teacher educators almost overnight became involved in social movements and deeply concerned with values, social reconstruction, and with the school as an instrument of social change. In this atmosphere of conflicting ideologies, extending into the war years, the American Council Study was conceived and carried out. It thus stands in stark contrast to the detached orientation of the National Survey and the Commonwealth Study.

In a new era and a new day, almost 20 years after the American Council Study, the Conant report ap-

peared.[5] In the early 1960's the Nation seemed to be almost on the verge of a new view of itself. With a young man in the White House and youth becoming more interested and active in political and social movements, it was only natural that the Nation would take a new look at pedagogical education, a look that would end in recommendations for action along institutional rather than ideological lines. Conant's study, backed by the Carnegie Corporation, was similar to Flexner's study of medical education. It entailed visits to schools of pedagogy, interviews with teachers and professors, and the assistance of pedagogical specialists and political scientists. The report consists largely of Conant's observations and recommendations about certification, academic preparation of teachers, theory and practice of teaching, course requirements, and personnel.

Despite Conant's status as a national and international educator, his report made little more than a ripple on the surface of pedagogical education. The title he suggested for supervising teachers, Clinical Professor of Education, enjoyed a brief life that was not paralleled by any significant change either in the quality of training or competence of personnel.

Although the study resembled Flexner's as to method, it lacked the trenchant prose of Flexner that named medical schools deemed to be worthless and areas of the country where they were concentrated. Speaking of the South, Flexner said: "It is generally overcrowded with schools with which nothing can be done; for they are conducted by old-time practitioners, who could not use improved teaching facilities if they were provided."[6] Furthermore, the impact of Flexner's report, according to a recent history of American medicine,[7] was probably due to Flexner's success in persuading the Rockefeller family to make grants to selected medical schools, grants that over a short time amounted to almost $50 million. This had the effect of elevating a few schools to such heights of visibility that others were lost to view and disappeared. Within 20 years after the report was issued the number of medical schools was reduced from 148 to 66. Conant had neither financial support nor the backing of the organized profession, both of which Flexner enjoyed.

In 1961, the National Commission on Teacher Education and Professional Standards of the National Education Association issued the report of its task force, *New Horizons For The Teaching Profession*, after an extended study of the following areas: professional standards, pre- and inservice education, accreditation, certification, and admission and retention policies and procedures. The purpose of this project was to develop plans to professionalize teaching, plans for action at local, State, and national levels. It emphasized, along with other aspects of pedagogical education, continuous experience throughout the period of undergraduate preparation, clinical experience, participation in community activities, controlled experience in practice teaching, and internship. It recommended a program of preparation extending over five years and the development of a feeling of responsibility on the part of students for their own learning. A good part of the report was devoted to inservice preparation. Its analysis of standards, accreditation, and licensing was perhaps the most thorough treatment of the subject to be found in the literature. However, like the studies that preceded it, the report neglected the fundamental conditions that hamper the development of preservice pedagogical education.

In addition to these studies and reports, the American Association of Colleges for Teacher Education issued two studies and sponsored the competency teacher education movement of the 1970's. One of these studies, *Teacher Education For A Free People*, published in 1956, was a by-product of a 3-year self-study of member institutions.[8] The team created to assist these institutions in self-study took the opportunity afforded by its visits to study the problems and trends in pedagogical education. This study, like the American Council Report of a decade earlier, was highly influenced by democratic ideology and the social scene. Academic preparation, the professional curriculum, laboratory experiences, and a number of other topics were emphasized by the study, but little recognition of advancements in the procedures, techniques, or knowledge of pedagogical education can be found in it.

A second study, *Teachers for the Real World*, was a product of the NDEA National Institute for Advanced Study in Teaching Disadvantaged Youth, established under a Title XI contract between the U.S. Office of Education and Ball State University.[9] The American Association of Colleges for Teacher Education administered the institute under a subcontract. This study culminated 2 years

of Institute work. Like other studies, it reflected the conflicts and tensions of the time, especially those centering on cultural and ethnic prejudices and discriminations. Placing emphasis upon the belief that all ethnic and cultural groups learn alike, it urged that teacher education be based upon that fact. It advocated systematic training in skills, teaching of concepts *in situ*, reconsideration of subject matter preparation, a year-long intern experience following the bachelor's degree, and a training complex in which the personnel of all occupations directly related to the care and education of youth would be trained.

With the support of the Federal Government a group of leading pedagogical educators in the 1960's developed a number of elementary teacher education models, generally referred to as The Comprehensive Elementary Teacher Education Models Project. Although fully expanded conceptually, these models never became operational and died for want of financial support. But they left a legacy of concerns and ideas about the development of competence. It was not surprising that this commitment to competence, carried over into the '70's, would contribute to the rise of the competence-based movement.[10] Combined with the Models Project it perhaps generated more deliberation and developmental work in pedagogical education than had occurred in any previous decade. Specification of competencies and the development of practical plans and materials constituted the heart of the movement.[11]

Part Two of the *Seventy-Fourth Yearbook* of the National Society for the Study of Education explored some of the perplexing and pressing problems of pedagogical education, an exploration that not only brought our knowledge up-to-date but explored a number of fundamental issues about various conceptions of the school, accreditation and certification, and the nature and complexity of the teacher training establishment. While this yearbook dealt with several facets of pedagogical education, it made no attempt to suggest innovations and directions of reform, although one chapter took a futuristic look. In this respect the *Yearbook* is quite different from other works on pedagogical education reviewed in this chapter. Nevertheless, it represents the most complete survey of the status of our knowledge about pedagogical education at the beginning of the last quarter of the 20th century.

Another study of primary importance is *The Report of the Bicentennial Commission on Education for the Profession of Teaching* of the American Association of Colleges for Teacher Education, and is the most comprehensive study of pedagogical education of recent years.[12] It culminated 2 years of study and was issued in celebration of the nation's 200th birthday. The report covers not only the preparation of teachers, emphasizing a career-long pursuit of effectiveness, but also the status of teaching as a profession, influences controlling pedagogical education, and the control of quality.

The Commission's primary purpose was to stimulate changes and to give them direction. Accordingly, the Commission provided its report with insights and rational justifications for its recommendations. It is not too much to say that one finds here an agenda for thinking and action that could take the profession through a generation of continuous improvements in pedagogical education.

What Previous Studies Overlooked

All of these surveys, reports, and movements have three things in common, each of which is a major feature of this book. First of all, they overlooked the university arrangements that throughout the current century stunted the development of professional schools of pedagogy. Colleges of pedagogy have been caught between the restraining influence of the graduate school mentality and the time restraints and academic animosities that come from the fact that pedagogical education is an undergraduate study.

To be sure, the university structure is not the only influence impeding the rise of genuine professional schools of education. Equally enervating are the lack of a stringent accrediting agency and the absence of direct support by teacher organizations. No less important is the fact that State legislatures, education agencies, and the Federal Government exercise more control over the profession of teaching and institutions preparing its personnel than over any other profession. In the entangling network of Federal, State, and local agencies and private and professional groups, the actual political and social forces shaping pedagogical education are no longer obvious. The motivation of these extraneous forces and their effects on pedagogical education, although explored in the Bicentennial

Commission's report, call for more critical examination than has been given to them heretofore.

The original scope of this book envisioned a study of this web of influences. Had time and resources been available, they would have been treated. With many misgivings, however, these concerns were abandoned in the interest of treating the internal problems of pedagogical education. The reason for this choice is a conviction that colleges of pedagogy must first put their house in order before they can hope to attain the faculty cohesion and professional leadership necessary to cope with the social and political influences now threatening whatever autonomy they have, if not their very existence.

The second thing these surveys and movements share is the failure to give primary consideration to the knowledge base of pedagogical education. Conant did discuss the professional sequences for elementary and secondary teachers, proposing that the secondary sequence be limited to 12 to 18 semester hours and to 30 hours for elementary teachers. But his deliberations consisted mainly of selecting among existing courses, eliminating some as worthless, and endorsing others as necessary and still others as useful. Of course, the competency-based movement also considered the content of pedagogical education as it related to the objectives of a particular program. This represented a marked advance over Conant's approach. However, neither one recognized the disarray of pedagogical knowledge and the necessity of assembling and sifting the knowledge from all sources as a prior condition to formulating objectives of instruction and training.

The third similarity among these studies of pedagogical education is that, while they all recognize the necessity of skill development, none gave an analysis of how pedagogical knowledge provides a basis for such development. The acquisition of knowledge and the development of skills have tended to fall apart, one taught as "theory" and the other as "practice." This cleavage has given rise to divisive orientations in faculties and to discontent among students with pedagogy as a professional study. This condition need not have developed, for when knowledge is properly understood it is clear that the path from knowledge to skills is continuous. Furthermore, the relation of knowledge to program development and to policy and decision-making received little attention despite their obvious importance.

A New Approach To Old Ends

In view of the array of studies extending over some 50 years and the apparently meager influence they have had upon the course of pedagogical education, it may well be asked why still another effort should be made to lay the groundwork for reform. One might plausibly argue that pedagogical education is what it is and is what it will continue to be; that pedagogical institutions will continue to produce teachers of lesser quality than is now possible, and that they will continue to attempt to do in in-service what they failed to do in the preservice program.

As part of that argument, it is often asserted that there is no adequate knowledge base of pedagogical education and that the most effective and efficient mode of teacher preparation is an apprentice system conducted largely by teachers in the public schools. This position is herein rejected, and for the first time an effort is made to examine the knowledge base of pedagogical education and to analyze the nature of that knowledge and how it can be made to relate to the task of preparing informed, inquiring, and skillful teachers.

It is a propitious time for making this effort. For the first time in this century the demand and supply of teachers are approximately equal. Pedagogical faculties are for the first time relieved of enough pressure from the production of teachers to consider their programs and to attempt a thorough revision of them.

Furthermore, the Teacher Corps has launched its 5-year cycle, which gives the various projects more time to give thorough consideration to the basic elements of their programs. Also a new research base is developing in selected areas of pedagogy through programs funded by The National Institute of Education. In addition, the deans and members of pedagogical faculties throughout the country are now concerned about the proper education of teachers for mainstreaming as well as for teaching skills and knowledge to children from low socioeconomic groups and backgrounds.

Moreover, research on the general concepts, principles, and skills of teaching and classroom management have now begun to equal in dependability the research on the teaching of reading, mathematics, and other subjects. For a long time research knowledge in the field of reading and mathematics has made it possible to design effective

programs in these areas and to train teachers in the skills appropriate to the content and problems of instruction. That teachers have not always used the knowledge and skills thus available is not to be attributed entirely to the teachers themselves but also to the inadequacies of their preservice and inservice training programs. Lacking knowledge and skills of management of classroom time and resources and student conduct and instruction, teachers are often unable to use content-specific skills and knowledge effectively. The research of the last 25 years has now accumulated a body of dependable generic knowledge with which to begin the development of a more effective program. It is this fact that makes an analysis such as the one herein discussed of paramount importance, especially at a time when interest in pedagogical education is at a new height.

Why Preservice Education Is the Theme

Perhaps a word of explanation should be given as to why this book is devoted wholly to preservice at a time when inservice education is receiving nationwide attention. The case for the latter is strong and almost compelling. We are told that the public is clamoring for better schools and that their demands can be met most immediately and thoroughly by increasing the competence of school personnel now on the job. Coupled with this point is the fact that the demand for beginning teachers is less now than it has been for several decades, with a resulting reduction in students seeking to become teachers. This decline in enrollment has been interpreted as an opportunity for schools of pedagogy to turn their resources primarily to inservice activities, an objective denied over the years because of insufficient staffing to carry on an all-out inservice program and a preservice program at the same time.

But why is inservice deemed to be so important? In answer, it can be said that advancements in knowledge during the last two decades make it desirable that teachers update their knowledge and skill. The trouble with this answer is that although there have been significant breakthroughs in didactic instruction and teacher-student interaction variables, the increase in knowledge is hardly sufficient to justify the overwhelming energy now being devoted to gearing up for inservice education.

Again, it can be said that innovations in instructional programs and in the structure of the school—for example, the open classroom—typically requires retooling of personnel. While much is to be said for this claim, all innovations should be thoroughly tested on a small scale before widespread adoption. This would eliminate many innovations that now absorb the energies of teachers and administrators in abortive efforts to improve the school's effectiveness. Inservice training would thus be noticeably reduced.

A more plausible justification for the current emphasis upon inservice programs is that over the years beginning teachers have been ill-prepared to meet the requirements of the day-to-day classroom tasks. This means that the ranks of teachers have been too often filled with those who required further preparation in order to satisfy a minimum level of successful work. To continue this syndrome of inadequate preservice preparation followed by efforts to make up the deficiencies by inservice education can only accentuate the present state of affairs.

The vision that this two-stage program of teacher preparation can make a marked improvement in public education is a mirage. Teachers now in the schools number a little over 2 million. About 700,000 have master's degrees and the remainder—about 1,300,000—hold the bachelor's degree.[13] Colleges of pedagogy now enroll about 200,000 students preparing to teach. To provide top quality preparation for beginning teachers and follow-up services in their first year, not to mention advanced students on the campus, overtaxes the meager resources of schools of pedagogy. When we add to this an inservice program for 1,300,000 teachers, the burden becomes overwhelming. Schools of pedagogy can scarcely hope to cope with this demand for both pre- and inservice training. This is a situation that invites ill-considered plans, private consultants who often claim more than they can deliver, and worst of all spokesmen for sensational solutions to dire problems.

Moreover, inservice programs drain off the energies of faculties from the task of developing an effective school of pedagogy, one capable of turning out teachers whose future inservice preparation can be reduced to updating their knowledge and skills instead of eliminating deficiencies resulting from poor preservice education.

No one can justifiably argue that inservice education today should be eliminated, for the requirement of improved schooling has been documented over and over again by achievement data. The posi-

tion taken here is that inservice preparation should be limited largely to those areas where data show the need for more effective instruction and control of student conduct. This would free a large proportion of college faculties from inservice activities to engage in a complete overhaul of the preservice work, an overhaul to produce professional teachers capable of doing their work skillfully and with a feeling of confidence.

Notes on Terminology

A few words about terminology is appropriate. The term "pedagogy" has long been held in ill-repute despite the fact that it designates the science and art of teaching. Nevertheless, we shall use "pedagogy" instead of "education" and shall use it to mean both the act of teaching and the art and science of education.

We are abandoning the use of "education" to refer to the science and art of teaching for a number of reasons. For one thing, the term cannot be used as an adjective to describe a kind of education. We can speak of legal education, medical education, and religious education but it is odd to speak of educational education. To avoid this oddity the expression "teacher education" is used when what is meant is educational education. While this avoids the oddity, it creates a semantic bind because colleges of pedagogy are much broader in program and purpose than the work of the teacher. We can speak of pedagogical education without this awkwardness and restraint.

For another thing, there is perhaps nothing that reveals so clearly our feeling of shame and inferiority for being teachers as our refusal to refer to our field as pedagogy. The use of "education," whatever the justification for it initially, is a subtle coverup of our feeling that association with the young and the task of shepherding them into adulthood is an inferior occupation.

It should be noted also that the term "education" has made it easy for schools of pedagogy to expand their curriculums to cover almost any area of human interest regardless of its lack of relevance to the science and art of teaching. The distinction between the content of a subject and the pedagogy of the subject has become so blurred that schools of pedagogy are finding it more and more difficult to rule out any subject. Either in formal courses or in workshops, hardly any subject is thought to be so removed from education as to be denied a part in the program of pedagogical schools. Consequently, we find courses or workshops in recreation, marriage, death, and human relations, to mention only a few, that have no unique pedagogical significance. Some colleges now offer more than 500 courses, many of which are only remotely related, if at all, to pedagogy.

Finally, the use of "education" to cover a field of study has been a continuing source of ill will toward schools of pedagogy. All university faculty members consider themselves as being in education regardless of their field. For a pedagogical institution within a univesity to designate itself as a college of education is to court criticism and the ill will of other faculties within the university.

We are fully aware that once a term is built into the literature there is little likelihood of eliminating its use. Nevertheless, we feel impelled to use "pedagogy" to designate the art and science of education.

"Training" is another term in disfavor. Nevertheless, we shall use it. It has a bad name because it has been interpreted to mean the inculcation of habits with little if any meaning to the learner. This interpretation came largely from Dewey, who used it in developing his conception of education.[14] Dewey's preference for "education" rather than "training" rests in part on his failure to distinguish training from both drill and conditioning. As a result, he assimilated the mindlessness of drill and conditioning to training, thereby making it a pejorative word. Viewing the term historically, Dewey's distinction is overdrawn, for since the mid-1500's "training" has meant "to instruct and discipline generally: to educate, rear, bring up"; "to instruct and discipline in or for some particular art, profession, occupation, or practice."

When we speak of "training," we refer to the practice of working with students in situations where they understand what they are to learn to do, why they are learning to do it, what the outcomes are expected to be, and the conceptual explanation of the performance being acquired. Students who have thus been trained are fully capable of monitoring their behavior, correcting subsequent behavior in terms of the preceding performance and the intended outcome. Students who act in this fashion are performing intelligently and professionally. We prefer "training" to "education" for

the simple reason that it designates the kind of education required for professional competence.

In this connection, a word should be said about the term "inquiry." Some authorities insist that teachers who are properly educated will be those who face problematic situations in their classrooms, be it learning difficulties, conduct problems, or whatever, and will inquire into the situations by gathering data, thinking them through, and arriving at a plan of action to solve the problem.

Properly understood, this is the conception of the inquiring teacher assumed in the following chapters. An inquiring teacher facing a problem will diagnose the difficulty in terms of professional knowledge. If it is a problem in reading, the teacher will know the total range of known difficulties of which the symptoms are an indication. In terms of the diagnostic data, the inquiring teacher will make a judgment as to which of the possible difficulties is involved, and from the known range of treatments decide the one most appropriate, try it out, assess its success, and analyze still further if other treatments must be considered.

It should be remembered, however, that no matter how intelligent, knowledgeable, and skillful the teacher may be he or she will from time to time make errors of either observation or judgment or both. Perfection, however much we covet it, is not a human quality. The rare teacher of course will occasionally go beyond the known diagnoses and treatments and hit upon new ideas and new ways of doing things. However, there is no way of educating the teacher to guarantee the ability to discover or create effective novelties.

Summary

No one can study the foregoing reports without a deep sense of appreciation for the efforts of so many who have explored the problems of creating a profession of pedagogy. Perhaps no other profession has been so thoroughly studied with respect to the preparation of its members. Yet none of these studies has dealt expressly with the institutional culture that has dwarfed the development of the professional education of teachers, the nature and uses of pedagogical knowledge, the need to assemble and order the knowledge relevant to a viable program of pedagogical education and the development of an informed and skilled cadre of pedagogical educators, and an appropriate institutional system of pedagogical education. These neglected problems are addressed in the following chapters.

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Chapter 1.

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PART ONE

Institutional Alignment and Programs

- How pedagogical education became deprofessionalized as it was incorporated into the university
- The institutional arrangements for a professional school of pedagogy
- Outlines of a preprofessional program for preparation in the subject matter of instruction and the behavioral and social sciences
- A proposed program in pedagogical education for the master's degree in pedagogy
- A brief for professional specialization leading to the doctor of pedagogy and to the doctor of philosophy

Chapter 2

Professional Status of Pedagogical Schools

There are approximately 1400 senior colleges and universities in the United States in the business of pedagogical education. They fall roughly into four categories: private liberal arts colleges with departments of pedagogy; universities, recently converted teachers colleges, with schools of pedagogy; older State universities with schools of pedagogy; and private universities some of which refer to their pedagogical units as graduate schools of education and others as departments or schools of education. The private colleges make up the largest proportion of these 1400 institutions.

Are Schools of Pedagogy Professional?

Strictly speaking, are any of these pedagogical schools and departments professional? If we use the classical examples of professional schools, medicine and law, as the source of criteria for deciding whether a school is a professional one, we arrive at the following conditions. A school is professional if its

- —sole purpose is to train personnel for a profession
- —program focuses on the development of practical knowledge and skills
- —program is designed without interference by other departments and schools
- —program is influenced by professional organizations and public criticism

Schools of medicine and law satisfy these criteria. They are single-purpose institutions that emphasize the education of practitioners. While some of their graduates become researchers, programs for professional degrees are not designed to produce them. Their programs are planned without regard to other departments and schools including graduate school regulations, save where the Doctor of Philosophy degree is involved. Unlike academic departments such as mathematics and history, which are relatively insulated from public pressure, schools of medicine and law are responsive to professional organizations and public criticism. In the final analysis, a professional school's commitment, like the profession itself, is to the well-being of the people the profession serves. Consequently, a professional school is subject to external pressures from both the profession and the public. However, the strength and frequency of such pressures are directly related to the social position of a profession and to the esteem in which the professional school is held by the profession and the public.

The schools that provide some form of pedagogical education measure up to these criteria in varying degrees. Although they train teachers, liberal arts colleges cannot be called professional schools. They are not single-purpose institutions, and their pedagogical departments function under the general policies covering all departments.

The private universities are not all of a kind. Some, Tulane University for instance, have a department of pedagogy, but they cannot be considered professional schools for the reasons just given for rejecting that status for liberal arts colleges.

Other private universities such as Stanford and Chicago emphasize graduate study in pedagogy. The primary mission of their pedagogical unit is to prepare personnel for university and college positions, to conduct research, and to prepare specialists for the public school. Little if any attention is given to the preparation of beginning teachers. Their faculties are oriented to pedagogical studies that ultimately focus on research for the doctor's degree rather than on competence for either positions in the public school or in the training function of pedagogical schools. These schools are divided as to purpose. In the same graduate-oriented program they purport to prepare at once students for research positions and high-level school personnel. The fact that their products are more able in academic than in practical pedagogy helps to account for the inferior pedagogical training in less prestigious institutions that employ them. In fact, the private universities along with the large State universities have over the

years supplied the personnel of the private colleges and smaller universities. Consequently, these dominant schools have set the pattern of pedagogical education and prepared personnel to fit it. While these schools appear to be relatively free of university restraints, except where graduate policies and finances are concerned, and are influenced to some extent by professional groups, they are nevertheless more graduate than professional institutions, divided in purpose with little emphasis upon practical competence.

Except for undergraduate work in pedagogy, the foregoing analysis holds for the large State universities; for example, Wisconsin and Texas. The schools of pedagogy at these universities are dual purpose institutions, trying to amalgamate the requirements for research degrees with those for practical competence. At the master's level the programs contain little that can be called clinical experience despite the fact that mini-courses in microteaching, protocol films, and other clinical materials are now available.

With few exceptions, the newer universities are following the same path, providing graduate-type programs heavily weighted with academic pedagogical courses and skirting the question of how to give the beginning teacher thorough training in clinical knowledge and skills.

Perhaps the most common characteristic of pedagogical departments and schools is that their clinical work is largely under the control of, and carried on by, the public schools whose personnel are unprepared to train teachers. Unless the primary emphasis upon clinical knowledge and skills, a school can hardly be called a professional institution. And clinical work under the direct control and supervision of pedagogical schools throughout the Nation is almost nonexistent.

At the undergraduate level colleges and departments of pedagogy actually function as service departments. The work in pedagogy is concentrated in the junior and senior years and varies from approximately 18 semester hours for secondary teachers to some 36 or more for elementary teachers. Pedagogical students are typically enrolled as juniors and continue to take a large proportion of their studies in nonpedagogical departments. Thus time for pedagogical education is inadequate, contributing to its deficiencies that in turn give comfort to its critics.

While the postbaccalaureate preparation of school personnel is typically concentrated in the college of pedagogy, the college in fact functions as a department of the graduate college, or, where there is no graduate college per se, as a graduate department of the university. The distinction between these two ways of categorizing colleges of pedagogy is considered by some to be important. The first, it is claimed, places restraints on the program of the college while the second leaves the college unfettered. But it is a distinction with little difference, for in either case the program of instruction is shaped almost entirely by the pervasive influence of the graduate mentality rather than by demands for professional competence. Tolerance for, and in some cases defense of, this graduate orientation by faculties of pedagogy betray their attitude toward the college as a professional school. Pedagogical faculties, educated in the graduate atmosphere, absorb its norms and unwittingly carry on its traditions.

How Did We Get That Way?

It was not always so. The normal schools, however poorly staffed and financed, were devoted solely to the preparation of teachers and more nearly met other criteria of professional institutions than the pedagogical colleges today.

How was the further development of normal schools aborted?[1] It began in the middle of the last century with the movement that ultimately took the training of teachers into the universities. The normal schools of that time were autonomous, single-purpose institutions, devoted solely to the preparation of teachers. In 1859, Richard Edwards, president of Illinois Normal University, speaking in defense of normal schools, emphasized that their sole purpose was to train teachers; that they gave instruction in the science and art of teaching; that they provided experience in the practice of teaching; and that they developed an *esprit de corps* and exalted the business of teaching. These purposes are as forward looking today as they were then. But even these essential functions were to be seriously eroded as pedagogical education came under the pervasive influence of the norms and folkways of the academic community.

In their early days, normal schools prepared elementary teachers and were not affiliated with institutions of higher learning. While they enrolled

students who were typically no further along in their education than the eighth grade, they took the very best of these. The curriculum provided for professional training and for preparation in the subject matter of the elementary school program.

A few years after the rise of normal schools, high school enrollments began to increase and the demand grew for secondary school teachers. Almost from the beginning, however, the preparation of teachers for the high school was considered a function of the liberal arts college. It was generally believed that there was little, if any, need for instruction in pedagogy, for academic knowledge was thought to be sufficient for success as a teacher. It was also believed that the liberal arts were superior to all other subjects and that they were superior because they provided general education and intellectual discipline.

However, professional subjects became more and more a part of the university curriculum as the elective system, beginning at Harvard, made its way into the university and belief in formal discipline broke down under the impact of psychological investigations. Despite the long standing belief that vocational subjects in general and pedagogy in particular were inferior to the liberal arts, pedagogy was nevertheless incorporated into the liberal arts curriculum. The inferior quality attributed to pedagogy, however, tended to shape its program in terms of those subjects most closely allied to the conventional disciplines. Hence the history of education was most commonly taught, second only to educational philosophy and psychology. Courses in methods, and especially such practice courses as observation and teaching, were considered weak and unsuitable for collegiate pursuit. Furthermore, pedagogical instructors were induced by the academic climate as well as by their own inclinations to accept the modes of instruction thought to be conducive to intellectual rigor. The courses in pedagogy were thus taught didactically with emphasis upon memory and verbal learning, a practice continued by pedagogical faculties when teacher education became a function within the university.

In competition with liberal arts colleges, normal schools expanded their programs by creating liberal arts departments and employing graduates of liberal arts colleges as faculty members. The mentality of the liberal arts departments, often quite out of sympathy with the science and art of pedagogy, thus crept into the normal schools. The academic departments in time became influential in shaping the programs of pedagogical preparation. And differences in orientation between the academic and professional faculties often gave rise to divisive issues such as the relative amount of time to be allocated to academic and professional courses, graduation requirements, the relevance of academic work, and the utility of pedagogical courses.

With the addition of liberal arts departments, the normal schools were transformed into institutions of higher learning, signaled by the new name —teachers college. Gradually these colleges began to admit more and more students who did not propose to teach but rather to acquire a liberal education. Partly as a result, the teachers college lost its single purpose—to prepare teachers—bequethed to them by the normal schools. The surrender of the single purpose, so staunchly defended by proponents of the old normal schools, led in the end to multipurpose institutions and the consequent assimilation of teachers colleges into universities.

In the course of this development, the teachers college came to be nothing more than liberal arts schools with a service department of pedagogy to provide a modicum of professional preparation. Thus the first teachers colleges, while in no way associated with the universities, were nevertheless not professional schools. In fact, if not in principle, they became liberal arts colleges not unlike private liberal arts schools with departments of pedagogy. Thus the movement to upgrade the normal school ended in the demise of the single-purpose, autonomous, professional school for the education of teachers.

Influence of the Graduate School

Liquidation of the 19th century ideal of a professional school of pedagogy is attributable as much to the incorporation of pedagogical education into the graduate school as to the emergence of the dual-purpose teachers college.

After graduate programs were introduced at Johns Hopkins University around 1880, universities began to develop graduate departments by extension of the liberal arts to higher levels. The curriculums of the various branches of liberal arts were accommodated to graduate requirements by speci-

fying majors and minors believed to be prerequisite to advanced learning. This was the mold into which advanced study of pedagogy was cast, so that the net effect of the influence of the university upon pedagogical education was to eliminate, or reduce to the lowest level, clinical work in favor of academic pedagogy, and to lock advanced study into the framework of the graduate school.

Widespread agitation for the creation of university colleges of pedagogy began around 1900. By 1923, some 34 State universities had established such a college. These colleges prepared beginning high school teachers and sometimes elementary teachers as well. They also provided programs for experienced teachers who desired to return to the university to complete work for their bachelor's degree. In keeping with graduate requirements, they also offered advanced studies in pedagogy leading to master's degrees, which initially required a thesis, and later to the Doctor of Philosophy degree and still later to the Doctor of Education.

It is important to note that colleges of pedagogy, while satisfying their hankering for academic status by stressing academic pedagogy, nevertheless tended more and more in the direction of clinical studies—general methods, special methods, practice teaching—but even these, except the latter, were typically taught didactically. At the very outset colleges of pedagogy were therefore torn between the desire to achieve academic respectability and the need to prepare students to perform effectively on the job.

With the growth of pedagogical faculties at the graduate level, colleges of pedagogy as departments in the graduate school, or else on their own, began to develop programs leading to the Doctor of Philosophy degree. Emphasis was thus placed upon research and the development of research scholars, even though they would be engaged in the training of teachers and only a small fraction would ever do research.

As pedagogical education came under the influence of graduate requirements and the liberal arts orientation, the college of pedagogy was caught between the influence of the graduate mentality and the demands of the public school for efficient and capable personnel. By trying to fulfill two purposes at once, colleges of pedagogy have been unable to realize either.

It has been recognized for some time that neither teachers nor researchers have been adequately prepared by this dual-purpose program. From time to time a separate program leading to research capabilities, if not degrees, has been proposed, but remained undeveloped. And modifications in the training of teachers have likewise been advanced, tried out, and abandoned. Pedagogy is today in a stalemate. Neither the demands for research nor the practical requirements of the profession have been met by the schools of pedagogy.

Summary

The drift of pedagogical education into its present setting was not the work of any one individual or group of individuals, but rather the result of the hidden forces of history. Who could have foreseen that the introduction of subject-matter departments would in the end convert normal schools into dual-purpose institutions, that the emergence of universal secondary education would ultimately transform them into teachers colleges, and that advanced study of pedagogy would respond more to the mores and folkways of the academic community than to the practical requirements of the profession? What pedagogical education is today could hardly have been averted. That it could have been, otherwise, is profitless speculation.

So, our schools of pedagogy are not strictly professional. So what? Would not a rose smell as sweet by any other name? Yes, but it is neither the name nor the fragrance that counts, but whether or not the rose is really a rose. Are our schools really professional schools? Do they meet the criteria? If they do, their graduates are likely to acquire the knowledge and skills of practical competence. If they do not, then meeting the criteria will render them more effective. How we got where we are, and the conditions we must satisfy as we move to a higher level of professional competence, is the sole purpose of the foregoing analysis.

What is important now is to consider the modifications that pedagogical faculties have the power to make. It is to these modifications that we turn in subsequent chapters, beginning in the next with elements of institutional culture that must be modified as progress is made.

Chapter 2

1. This analysis is based upon the classic work of Walter S. Monroe, *Teaching-Learning Theory and Teacher Education*, 1890-1950. Urbana: University of Illinois Press, 1952; Pangborn, Jessie M. *The Evolution of the American Teachers College*. Contributions to Education, No. 500. New York: Teachers College, 1932; Gartner, Alan. *The Preparation of Human Service Professions*. New York: Human Sciences Press, 1976.

Chapter 3

Toward a Professional School of Pedagogy

What can a pedagogical faculty do in order to move its school closer to a professional level? Consider, first, things it cannot do, or can do only to a limited extent. These concern factors external to the school and on which the faculty can have little direct influence. Examples are Federal restraints, regulations of State departments of education, legislative enactments, judicial rulings, attitudes of the public, financial support, influences of accrediting agencies, attitudes and policies of professional organizations, and the excessive number of schools in the business of pedagogical education.

However, certain internal conditions yield to faculty influence and control, such as the institutional level of professional study, amount of time allotted to it, the preprofessional and professional curriculums, the involvement of public school personnel, the quality of the faculty itself, and policies governing rank and pay. It stands to reason that if these conditions are modified in positive directions, a pedagogical school can make marked progress toward becoming a full-fledged professional institution.

As we approach the question of what changes should be made in these conditions, it is instructive as well as encouraging to note that pedagogical education today confronts about the same problems as medical education did at the close of the last century.

An Historical Parallel

Comparisons are sometimes made between pedagogy and medicine in respect to methods; for example, diagnosis and prescriptive procedures and clinical approaches to training. The comparisons are just as often questioned. It is pointed out that pedagogical problems are not pathological and that, unlike medicine, the purpose of pedagogy is to raise individuals to new and higher levels of interaction with their environment and not to restore a body equilibrium. These are interesting claims and counter claims, but they overlook a more interesting and striking similarity; namely, the similarity between medical education at the close of the last century and pedagogical education today.

Even in the closing years of the last century a student could enter medical school with only a common school education and complete the requirements for the doctor's degree in 2 terms of 4 months each. The low quality of medical schools in the 1880's is vividly portrayed in the 1889 annual announcement of the medical department of the University of Georgia. The close parallel with the conditions of colleges of pedagogy today is all too striking. Here is the announcement:

> The Medical College of Georgia, since 1872 the Medical Department of the University of Georgia, received its first charter in 1829, and rapidly attained a marked success. With all facilities for imparting instruction in every department of medicine, an exceptionally able Faculty and an ample income, its classes increased yearly until they numbered from 150 to 200 students, among whom were many of the most noted men of Georgia and the surrounding States. It would, undoubtedly, have become one of the foremost institutions of the land if Georgia, conjointly with other States had not adopted the very foolish policy of chartering a number of competing colleges, all sole judges of their own requirements, both for matriculation and graduation. Of such charters, ten have been issued in Georgia and nearly 400 in the United States. The consequence might have been foreseen. Students as a class are distrustful of their own powers when contrasting their modest acquirements with the vast store of knowledge they are expected to attain, extremely sensitive to the disgrace of rejection, and anxious to obtain their licenses in the shortest possible time. Hence, they naturally patronize not the best colleges, but such where the requirements are the least exacting and the time the shortest.

It is but natural that the colleges, dependent as they are upon their patronage for their very existence, should have been influenced by this tendency to lower their requirements, until the standard of medical education is actually lower in Georgia and the surrounding States than it was thirty years ago. It is no secret that young men are annually graduated from all the colleges who are by no means competent to practice the difficult art of medicine, and have neither the talent nor the education to obtain the requisite knowledge by their own endeavors.

The University has made unceasing endeavors to escape from this degrading position, but has learned from experience that to persist would result in driving its students to other colleges and close its doors without in the least altering the condition of things. The case seems utterly hopeless without the aid of the Legislature, to which it has hitherto been considered vain to apply to remedy the mischief for which it is largely responsible.[1]

As noted earlier, there are some 1400 pedagogical institutions. The content of their programs consists of personal experience of instructors, doctrines, pedagogical formulas, opinions, and research knowledge. Competition for students among instructors as well as among schools, even at the crest of the enrollment swell of the 1960's, was keen enough to loosen the rigor of instruction. Legislatures establish and support pedagogical institutions with little regard to either need or quality. Yet there is cause for hope. If medical schools, in comparable circumstances, raised themselves to admirable levels of quality in less than a century, there is reason to hope that schools of pedagogy can at least establish themselves as genuine professional institutions.

Those of feeble hope will say that medical education possessed a knowledge base at the turn of the century and that the task of medical schools was to develop and institutionalize an effective training program, but that pedagogical education today has insufficient knowledge for a program. We venture on shaky ground when we begin to compare knowledge in one field to that in another. But the anemic state of medical education in the closing decades of the last century is evident from the fact that 8 months of medical schooling was sufficient to qualify one as a physician.

The medical curriculum at the University of Georgia in 1889 consisted of anatomy, pathology, pharmacy (called medical chemistry), obstetrics, gynecology, eye and ear and throat, surgery, medical jurisprudence, and practice of medicine. Comparatively little was known about any of these. The theory of disease had been established, although limited to bacterial causes. Little or nothing was known about viral, genetic or nutritional diseases. Diagnostic knowledge and techniques were crude, and physicians prescribed for obvious symptoms—sore throats, coughs, diarrhea, fevers, and consumption. Medical treatment was in its infancy. Quinine for malaria, aconite and digitalis for the heart, splints for broken bones, carbolic acid and iodoform as antiseptics, and after these we soon run out of specifics. Many drugs affected only the symptoms. Among these were bismuth, opium, alcohol, spirits of ammonia, and a few analgesics. Surgery was still primitive: Keen, Crile, Halsted and others had barely begun to develop the science of the art.

Pedagogy today is much beyond medicine when Johns Hopkins initiated the program that ultimately transformed medical education. While we do not know the cause(s) of learning, we do know the conditions of learning both in and outside the classroom. The general outlines of human development have been discovered and we are beginning to learn the effects of some environmental factors upon human potentials. We know how to identify many obstacles to learning, particularly in reading and mathematics, and how to help learners cope with them. Our knowledge of exceptionality and how to provide for it is considerable and increasing. While our knowledge of social and emotional development is more fragile than our knowledge of cognitive development, still much progress has been made in procedures and techniques of promoting effective growth in the classroom. In later chapters, pedagogical knowledge will be discussed at length. It should suffice for now to say that if the history of medical education has any lesson for us, it is that the problem of pedagogical education is not the lack of knowledge so much as the lack of will to institutionalize an effective program of pedagogical education.

Proposed Institutional Arrangements

While new knowledge is always to be cherished, and pedagogy, like other professions, can always use more of it, the shortcomings of pedagogical education today can be attributed more to deficiencies in institutional arrangements, programs, and instruction than to lack of knowledge. In the remaining pages of this chapter an institutional framework for pedagogical education is suggested. Programs and instruction will be treated in later chapters.

The reader should remember, however, that elements of the plan will change, perhaps fundamentally, between our conception and the final realization of a professional school of pedagogy. There may be better formulations than the one we suggest. And new conditions, not now foreseeable, may arise whose demands will require drastic changes in our design. It would be strange indeed if our prospectus were not improved upon greatly as others consider the problems and conditions.

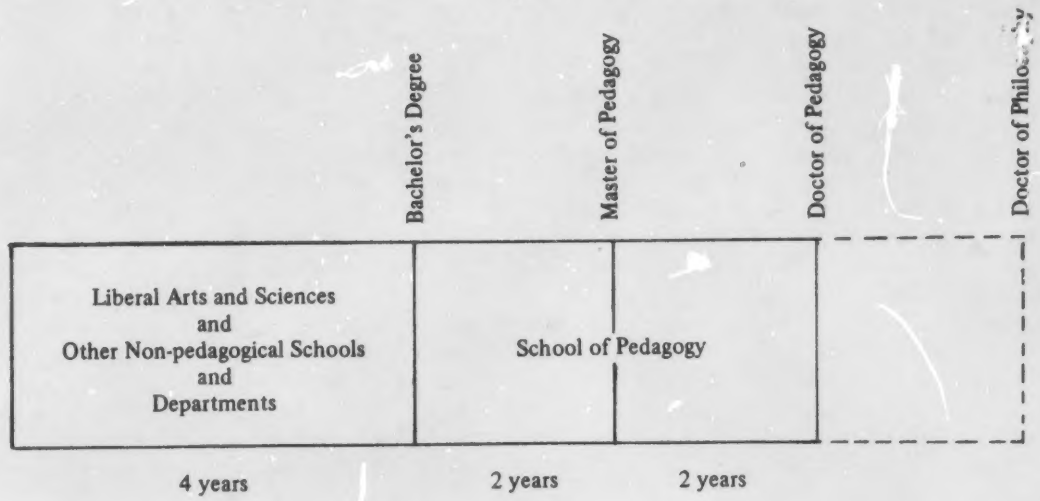
Our schools of pedagogy would be well on their way to becoming genuinely professional, however, were the arrangements finally worked out to adhere from school to school. What we need least of all is a multitude of different institutional and program designs, giving rise to endless debate and schemes of evaluation.

Consider the following schema for the preparation of pedagogical personnel. It begins with the first year of undergraduate study and ends for teachers with 2 years of professional study in the school of pedagogy and for specialists after 2 additional years.

Students would enter the undergraduate school and pursue work for admission to the school of pedagogy. Certain curriculums would be open to them: a curriculum in the subject matter required to teach the elementary school curriculum, including early childhood and primary; a curriculum in each of the various content areas of the junior and senior high school; and a prepedagogical curriculum consisting of introduction to psychology, learning theory, human development, sociology, anthropology, and philosophy. These studies are to be taken as a foundation in the behavioral sciences for work in academic pedagogy. At the present time few students come to the study of pedagogy with adequate footing in these areas, a deficiency that handicaps them in their study of the concepts and principles underlying the programs, policies, and practices of the schools.

Admission to the school of pedagogy would be by specified criteria and contingent upon completion of the baccalaureate program, except as indicated below. Students would then pursue professional studies until completion of the course require-

Diagram 1. Schema for Preparing Pedagogical Personnel



ments. This would entail at least 2 years of study. At that time the student would be granted the master's degree in pedagogy upon satisfactory performance on examinations and demonstration of competence.

Now, the exception. Articulation of the undergraduate program and the first year of professional study can be so ordered that the last semester of the senior year and the first semester of pedagogical study can be interchanged, thus enabling the student to become involved in clinical pedagogy somewhat earlier. The academic work for the bachelor's degree would be completed and the degree awarded during the first year of professional study.

The sole aim of the program for the master's degree is to develop competent teachers, and the time of the student will be devoted entirely to professional studies. The program will be discussed in Chapter 5. Suffice it to say here that it will consist of various types of clinical experiences and pedagogical practice throughout the 2 years, coordinated with academic and clinical pedagogical studies.

Naturally, specialization with respect to pedagogical functions will be built into the program. The areas of specialization will include early childhood and primary pedagogy, elementary pedagogy, and secondary pedagogy. Exceptionality will not be an area of specialization except in the doctoral program. However, all students will be prepared in the elements of exceptionality and in the skills of mainstreaming.

Although they are intensively trained, graduates should be followed up during the first year and provided with such assistance as is necessary to assure their success. To this end, a follow-up corps should be established by the college to study its products, to provide them with assistance, and to supply information to the faculty bearing upon the strengths and weaknesses of its program of training.

Requirements for admission to the doctoral program will vary with specialization. Students who wish to pursue a career in research and evaluation may go into advanced study directly, or they may teach for a year or two and then enter the program. In any event, research and evaluation should be the dominant interest of the student and only the most capable should be admitted. The program should be distinctly different from professional programs to prepare specialists in various areas of pedagogical practice. The program should lead to the Doctor of Philosophy degree, and students who become researchers should not thereby be considered capable of training pedagogical personnel. The number of students being prepared for research careers at any one time should be small, and only those schools having an active research faculty and resources should offer work leading to the research degree.

Programs leading to the Doctor of Pedagogy are to be planned to prepare competent specialists in all areas of educational endeavor except research and evaluation. Students admitted to the advanced program to become prepared as specialists in pedagogical practice should have had some experience in educational work, for students are more likely to be successful as specialists if they have first demonstrated their competence as teachers.

Areas of specialization should be quite diversified, as are the positions in education generally. A few are mentioned here as examples: specialists in exceptionality, reading, vocational pedagogy, counseling, school psychology; educational directors in the private sector, and in government.

Curriculums leading to the degree of Doctor of Pedagogy should emphasize clinical work and pedagogical practice in the student's specialty as well as substantive courses. Although the student must be thoroughly steeped in research literature and its significance for the practice of pedagogy, no theses or dissertations should be required for the doctorate in pedagogy. And students should not be expected to do research in the course of their training.

A college, no matter what it calls itself, can function as a professional institution only if it separates its program for the preparation of practitioners from the program for researchers. This does not mean that the program for practitioners is to ignore the results of research. On the contrary, research knowledge is its very substance. But it does mean that the requirement of a research project and other trappings of a research-oriented graduate program are barriers to the development of a program for professional personnel.

It is claimed by some authorities that teachers should themselves engage in research and should therefore be prepared to do so in their professional training. This is a worthy objective, but it does not require a graduate-oriented program for its attainment. We know from other professions that a few practitioners do engage in research from time to time and that their preparation also enables them

to conduct on-the-job studies when they choose to do so. Research by teachers is not the issue. Instead, the question is whether the program of professional preparation is to be shaped by the research mentality.

The Need For Clinical Facilities

Institutional arrangements for pedagogical education are incomplete without clinical facilities that can be provided by the public school, governmental departments, and the private sector. Although the facilities of all these are needed, the public schools are crucially important in the first 2 years of pedagogical study. The key role of the school follows from the fact that most graduates will become teachers and from the further fact that the clinical principles of teaching and learning as well as pedagogical skills, both of which are necessary in any pedagogical function, are best acquired in school settings.

To acquire pedagogical skills is to practice in a school setting in which the trainee's performance can be observed, diagnosed, and corrective feedback given as practice is continued. This requirement has fundamental implications not only for the personnel of the college of pedagogy but also for the relationship between the college and the schools. These implications have never been satisfactorily derived, explicated, or translated into practice. For one thing, neither the local board of education nor the State has seriously committed itself to the task of providing the proper clinical conditions for pedagogical training. For another thing, colleges of pedagogy have never committed their resources or staffs to the task of pedagogical training nor provided the leadership to induce local school personnel to join in a study of the mutual problems of pedagogical education. The crucial function of school clinics in the training of all pedagogical personnel makes it mandatory that colleges of pedagogy seek the cooperation of local education authorities to establish a system of clinical laboratories.

The number of training sites will depend upon the number of trainees and the optimum number that a given school can properly train without disrupting its program. The number of trainees per site can best be answered by the experience of each school, for the circumstances may vary widely from school to school.

This injunction applies equally well to the colleges of pedagogy. Admit no more students than the faculty can properly train. It is not the primary responsibility of pedagogical schools to turn out graduates in sufficient number to fill every vacancy in the public schools or elsewhere. Their first commitment is and must be to the education of competent professionals. To water down that commitment in order to turn out enough personnel to meet demands is to surrender whatever right pedagogical schools have to call themselves professional institutions. If the graduates of the schools of pedagogy are not numerically sufficient to fill the jobs, let the State provide the necessary resources to train the needed personnel without sacrificing the quality. To meet the demands for educational personnel at the expense of quality is to betray the public and its children.

Some will hold that the State will meet the demands for teachers by other means. If pedagogical schools continue to turn out quality personnel, however, their products will be in demand by the better school systems. And the State, not the pedagogical schools, will bear the burden for the depressed quality of schooling.

Clinical facilities for the third year present a problem quite different from that of the first 2 years. Clinical training required for the master's degree is common to all pedagogical work, as noted above, and can best be provided in a school setting; that for the doctor's degree is specialized and prepares individuals for differentiated positions in private and governmental domains as well as for specialized work in the schools. Since the number of doctoral students will be comparatively small, fewer clinical sites will be required. The clinical situations, however, may be extremely varied because of the uniqueness of the job demands from one enterprise or organization to another. Nevertheless, these clinics will fall into three groups: scholastic, governmental, and nongovernmental enterprises and organizations. The relationships of the college of pedagogy to these clinics are likely to be tenuous and fleeting at the beginning, but can be stabilized with experience.

The Quest for Clinical Facilities

Pedagogical schools have been plagued throughout the current century with the question of where

to train their students. In the first half of the century the typical provision for training was the campus school, variously referred to as the experimental, practice, demonstration, or laboratory school. From time to time the campus school encountered serious objections. It was not like the public schools and hence maladapted the trainees for work success; it cost too much per trainee even though the school often served as a research center; and it was too experimental and offbeat to serve as a demonstration center. Although these objections were not infrequently justified, the campus school lingered and is still found in a few institutions.

However, its displacement by the public schools as the training facility resulted less from criticism than from the influx of students into pedagogical education in the 40's and 50's, overcrowding the campus school and driving colleges of pedagogy to seek training facilities in the public schools. One study showed that by 1945 some 75 percent of the trainees of forty large universities were being placed in the public schools[2] while another study reported 2 years later that, of 135 teachers colleges, 108 still operated campus schools but also used public schools to ease the overload.[3]

In the long run, however, the laboratory schools would probably have dropped by the wayside anyhow. Their faculties were no more capable of identifying the deficiencies of trainees and showing how to overcome them than the better public school teachers themselves. And it is only fair to say that this is a condition with which faculties of pedagogy are still struggling, even though the knowledge for removing it is becoming increasingly available.

From the beginning the use of public schools as a training facility rested upon an uneasy partnership.[4] Use of the schools was informally arranged. Neither the university nor the college of pedagogy negotiated contracts for the services of the schools. In moving its trainees to the schools the college gained a natural setting for its training function, but at the same time it lost control of the training personnel. The critic or supervising teachers were typically recommended if not selected by the principal, although the college sometimes exercised veto power. They were poorly paid, typically by small stipends or tuition waivers, and as critic teachers totally untrained; nor did the college provide training for them. Even today only a few colleges provide a modicum of training. Furthermore, the services of supervising teachers were over and beyond their normal teaching loads, overtaxing their energies and rendering them even less effective as critics. Against all this was the claim that the teacher and the school profited from the growth of teachers who served as supervisors, a dubious claim at best.

Moreover, college supervision of training was seldom, if ever, adequate. The college supervisor infrequently observed the trainees' performance and thus lacked the understanding of their problems that can come only from direct observation.[5] Discussions between the supervisor and trainees were thus often academic if not irrelevant. Furthermore, the college supervisor was typically no better prepared for the training function than the critic teachers themselves. The large universities tended to use supervisory positions to support graduate students. While these students were usually diligent and conscientious, still they were unprepared for the task. And, as in the case of critic teachers, the college provided little or no training for its supervisors.

The training program suffered still further from college policies on salary and promotions. The supervisory faculty was considered of less importance than the faculty who taught pedagogical academic courses, did research, or published articles and books. The supervisors were thus the underdogs of the college faculty, even when they held rank, and received less attention when salary increases and promotions were passed around.

While the foregoing account of the facilities and staffing of the training program is presented in historical perspective, it describes in general outline the training component of pedagogical education today.

New Conditions Call for New Arrangements

Dissatisfaction with the provisions for trainees is being expressed in new and forceful ways.[6] Teachers are becoming aware of themselves as professionals and are demanding to be treated as such. One expression of this awareness is a growing revolt against the use of the schools for pedagogical training without involving teachers in the formulation of policies about the number of trainees, how they are assigned, status of supervising teachers, modes of training, and evaluation.

Moreover, the demand and supply syndrome is uppermost in the minds of teachers today, for the

oversupply of teachers tends to reduce mobility of those who hold positions and to cast a shadow of uncertainty on their tenure. It is not surprising therefore that teacher associations are looking askance at the use of the schools to provide teaching experience for students in excess of the demand for new teachers. And the practice of placing trainees with selected teachers, difficult as it has been in the past, promises to be even more difficult as both individual teachers and the organized profession seek to exercise more control over assignments.

There is little likelihood that a genuine professional school of pedagogy can be sustained and improved unless its training facilities are of high quality. Yet the present facilities are unsatisfactory. To return to the campus school as a training center is not a feasible alternative. It was not satisfactory in the first place, and the demands for quality teachers, even when school enrollments are decreasing, is far in excess of what campus schools can supply. Besides, the present partnership with the public schools is encountering new conditions with which it is unlikely to cope.

At the same time our conception of the role of the teacher is undergoing fundamental modifications. The teacher today is expected not only to be competent in the classroom and the school per se, but also to understand both the broad social context and the narrow context within which a particular school carries on its work. This means, among other things, that teachers should understand the various social groups and agencies that impinge in one way or another upon children and youth, and should also possess the skills of communication essential to successful interaction with these various entities. In addition, the involvement of teachers with parents and home influences of children and youth are such that knowledge and skills required for successful communication with parents are only less essential than the knowledge and skills for participating in the school itself.

The Emergence of Community as a Laboratory

The foregoing analysis points up the necessity for widening the arena, within which pedagogical trainees acquire their professional knowledge and skills, to include the whole community. The community is not the close intimate web of human associations we often read about in literature and that many now living experienced in their youth. In little more than a generation this mode of social existence has all but fallen by the wayside. In its place has evolved a conglomerate of social groups, corporate associations, and organized interests all loosely interdependent and held together partly by some sense of fair play and partly by antagonistic cooperation, to borrow an expression from Sumner, in which their unique and competing interests are temporarily subordinated to some special and compelling common concern.

Gone also is the neighborhood school whose students lived in the vicinity and whose control rested with a board of trustees who knew the children and their parents. Today the school draws its students from a population scattered over an extensive territory. The school trustees also have been replaced by a single board of education that controls a number of schools and whose members are often known to the parents only through the media. All of this indicates that today the teachers often do not know the parents and many, if not most, of the children do not associate with one another save in the school itself. There is hence an impersonal quality about the school and its ties with the social milieu.

When we speak of the community and its schools we have reference to this general situation of competing and often conflicting groups and interest, constantly coming together in varying combinations in efforts to resolve social issues of common concern. We do not mean community in the old sense, as a group of people living in the same neighborhood, sharing experiences, and having a large core of mutual interest. Community in that sense hardly exists save at the point of resolution. In short, community as a meeting of minds tends these days to be a recurring event rather than a constant state of affairs.

This is the social setting in which the trainees are to be socialized and prepared in pedagogical skills. The question to be considered is what institutional structures, contractual arrangements, and laboratory facilities are indicated for pedagogical education by this complex set of social circumstances.

The implication of this broader conception of the pedagogical arena indicates the need for a new conception of training facility. From the very beginning the training facility has been thought of as a particular school in which the trainees gain experience. This conception must be abandoned. The

Teacher Corps has taught us in no uncertain language that the community and its schools constitute the training laboratory. The pioneer work of the Teacher Corps in creating a new setting for the training of teachers has now begun to be realized as one of the most significant developments in pedagogical education in recent decades. It is this conception that must now be grasped, expanded, and institutionalized as a component of the school of pedagogy. In the remainder of this chapter we shall attempt to set forth the concept of a community and its schools as a pedagogical training facility.

The Clinical Complex

Visualize a school of pedagogy surrounded by a number of communities of varying sizes and distances from the campus as shown in diagram 2. Each of these communities will constitute a training facility with the school of pedagogy as the center of the cluster. We shall refer to such a group of communities and the school of pedagogy as a clinical complex and to each community as a training laboratory.

The center of the cluster of community training laboratories is the school of pedagogy. For purposes of illustration let us assume that the cluster contains six communities with an average population of 50,000 and that each community has 10 elementary schools and four high schools, two junior and two senior schools. If each elementary school accommodates seven trainees, one for each grade plus kindergarten, or a total of 70 for the entire laboratory, the complex of six laboratories would afford training for 420 trainees. At the same time the four high schools, combining junior and senior, could easily accommodate 12 trainees each, two for each grade, or a total of 48 for the laboratory as a whole or 288 for the entire complex. Furthermore, the community organizations and agencies could provide training experiences for at least 40 trainees per semester, or a total of 240 for the complex as a whole. All together the complex could accommodate 708 trainees in the schools and 240 in the community, or a grand total of 948 per semester. If each school of pedagogy restricted its enrollments to the number of students it can train effectively, a complex of this scope would seldom be required.

The foregoing description gives the general outlines of the clinical complex. Its scope will of course vary from college to college, depending upon the availability of communities and their geographic distribution. But the core of the concept would remain the same; namely, a college of pedagogy with a cluster of community training laboratories.

Governance of the Clinical Complex

An organization of this scope and complexity can operate smoothly and effectively only if it is functionally ordered to represent the interests and concerns of its constituents—community, schools, legal authorities, and the college of pedagogy—as shown in diagram 3.

There are two levels of organization. First of all is the complex itself. The administrative organization at this level should consist of at least one representative from each laboratory, preferably the chairperson of the laboratory advisory board, and a representative of the college who should be the director of the complex. This group, referred to here as the clinical complex council, is responsible for developing the rules and regulations governing the operation of the complex, reviewing and evaluating its work, making suggestions for improvements, and in general advising the director, who is ultimately responsible to the dean and faculty of the college of pedagogy.

The director is responsible for the administration of the complex which involves, among other things, negotiation of contracts with local boards, keeping abreast of the problems and developments in the various laboratories, selecting and working with the college faculty, including public school teachers who are members of the faculty, who are to serve in a clinical capacity in the laboratories. The director will also work closely with the appropriate members of the college administration having to do with the selection and retention of students and assessment of their readiness for assignments to the training laboratories.

Governance of a Laboratory

The second level of organization is the laboratory. A contractual agreement between the school of pedagogy and each local board of education would be negotiated. This agreement would specify

Diagram 2. Clinical Complex

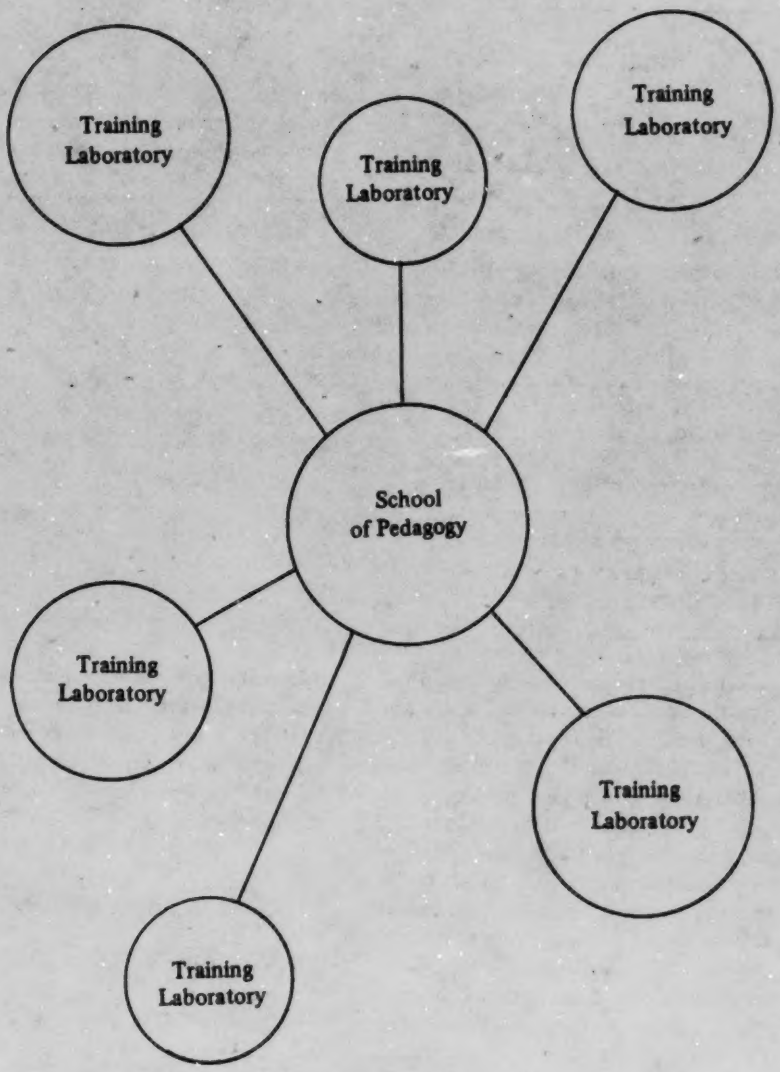
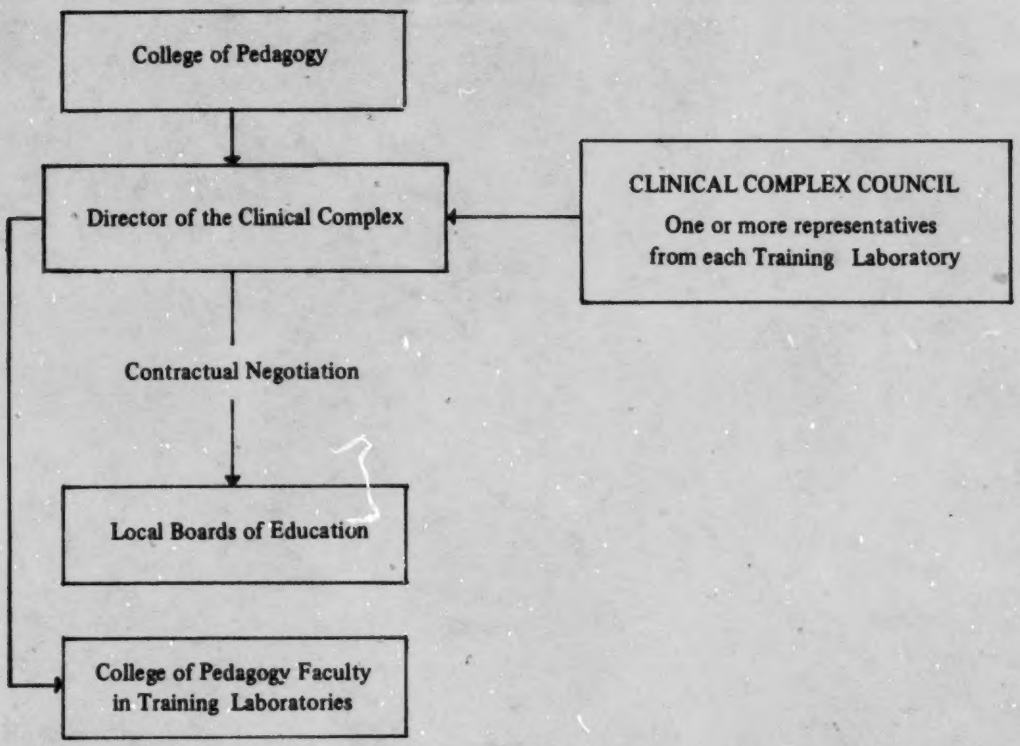


Diagram 3. Governance of the Clinical Complex



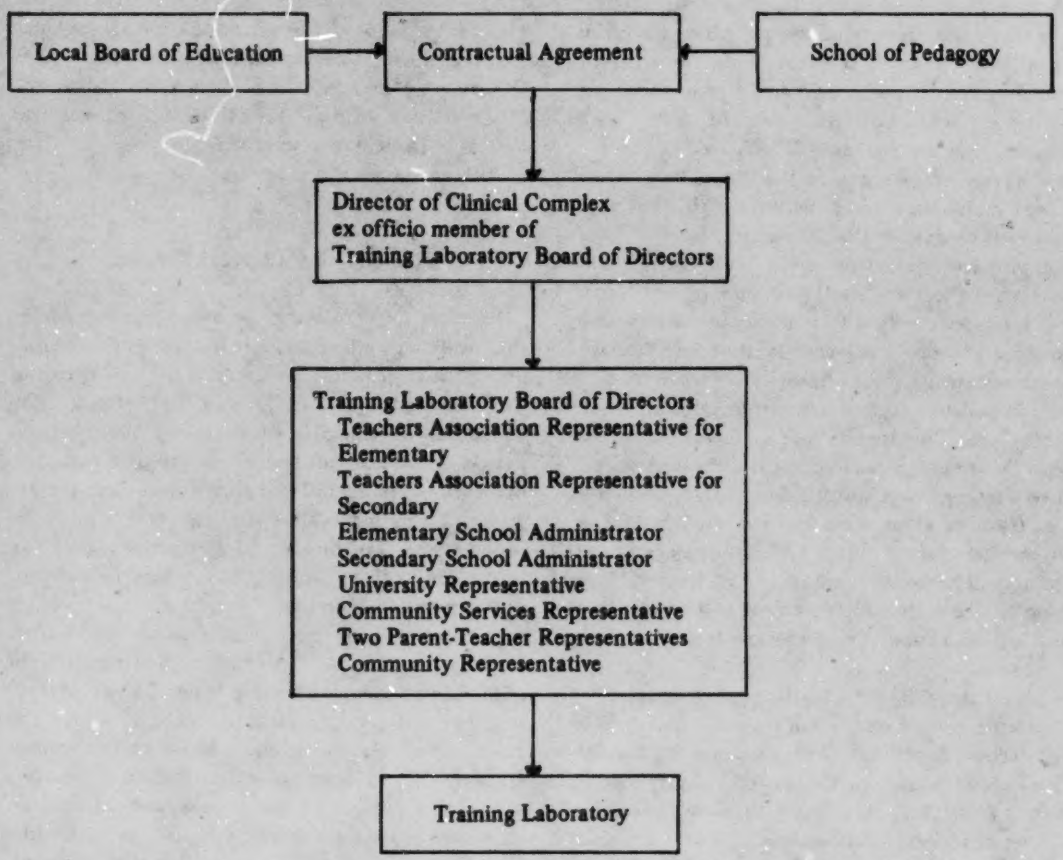
the general policies under which the school of pedagogy and the board would cooperate to finance and staff the training facility. The contract should also provide for the establishment of a board of directors for the laboratory, as depicted in diagram 4. This board would consist of one elementary and one high school teacher, each a representative of the organized teaching profession. The board should also include an elementary and a secondary school administrator, university representative, community services representative, two parent-teacher representatives, one of whom should be from a minority group, and a representative of the chamber of commerce or a similar organization.

Each board of directors would operate within the policies laid down by the contractual arrangements between the school of pedagogy and the respective board of education. It would have direct responsibility for the formulation of policies about the number of trainees the laboratory would accommodate, the assignment of trainees to schools, the responsibility of the clinical staff, the extraclassroom activities in which the trainees would engage, and such other policy questions and problems as may arise from time to time. The director of the clinical complex would be an ex officio member of the board.

Staffing the Laboratory

Traditionally the trainees have been confined to the school and the classroom during their clinical experience. This is no longer a viable practice. As indicated earlier, the trainee must now study not only the sociology of community life but also gain first-hand experience through observation and participation in a wide variety of community activities. This point has been emphasized by a number of authorities, and a few schools have arranged for such experience. But these ventures have for the most part been conducted informally and without

Diagram 4. Governance of the Training Laboratory



clear direction and control. In order for the trainee to receive proper experience and training in these broader pedagogical settings a definite program must be planned and staffed.

The personnel to conduct this program should consist of a team of college faculty members selected from among those who are knowledgeable in the area of community life. This team would plan a program for review by the advisory board, and after the criticisms and suggestions of the board had been fully considered and the program revised, the trainees would be admitted for at least a quarter if not a semester's intensive work under the direction of the team. This means that the team would in effect be conducting a seminar-practicum in an actual community setting.

Turning now to the schools, a team of clinical teachers would be constituted in each school to conduct the preparation of the trainees not only in the skills of classroom teaching but also in curriculum planning, participation in various school activities, and the development of skills in the various domains of training (see Chapter 9) with special emphasis upon the ability to observe and diagnose the difficulties students encounter as they engage in the process of learning. Diagnosing and planning is prerequisite to the conduct of instruction itself; their importance cannot be overemphasized. But they should, nevertheless, not preempt the program to the exclusion of other domains of preparation.

All can agree that clinical teachers must be thoroughly versed in the knowledge and skills of

teaching based not only upon their own experience and professional wisdom but even more upon research. It is too much to suppose that any team of teachers, however successful they are as teachers in their own classrooms and school, will be equally prepared to conduct a training program. Even the most effective teachers perform in many ways of which they are not aware and attain results without knowing explicitly how they attained them. Furthermore, they are probably ill prepared to observe the behavior of teachers and students objectively and to analyze teaching behavior sufficiently to provide corrective feedback to a trainee.

To prepare clinical teachers, both college and school, the college will need to designate instructors to work cooperatively with teachers in the development of a training program. It must be admitted that college instructors themselves are often no better equipped to conduct a training program than the teachers. This means that college instructors, those who are to engage in clinical work themselves, will be engaged in acquiring knowledge and skills about training along with the teachers who are to compose the clinical teams. While the question of training will be considered again in Chapter 12, it can be said now that such training will be mostly a bootstrap operation, for there are few experts to draw upon.

Because differentiated staffing is the practice in an extremely small number of schools, the mores of public school faculties tend to produce negative attitudes accompanied by feelings of jealousy toward teachers whose assignments are different from those of other teachers. Clinical teachers are therefore likely to encounter coolness if not actual resentment because of the special character of their work and their rank on the college faculty. There is probably no way of avoiding this possibility, but perhaps its effects can be alleviated by opening up the ranks of clinical teachers to any teacher who satisfies the qualifications. If the criteria are stringent and rigorously adhered to, as they should be, not everyone will want to become a clinical teacher. Those who choose not to do so will at least have had their chance, and this fact should help to reduce jealousies and tensions.

The clinical teacher would of course be given an assignment different from that of other teachers. They would also hold rank in the school of pedagogy, a recognition that would be contingent on the judgment of appropriate faculty committees and the dean of the college. All of this is possible only if there is adequate financing by the State to compensate teachers for that part of their load assigned to the clinical function. The funds thus appropriated should be channeled through the budget of the school of pedagogy. The salary of clinical teachers, however, must be determined jointly by the school of pedagogy and the local board of education. Other than providing funds to supplement the salaries of clinical teachers the State should exercise no influence over the program.

Elements of a Clinical Program

In order to picture the outlines of a program we shall walk a group of trainees from the campus into and through the program. Again the experience of Teacher Corps is of paramount importance. The Corps has developed a concept of a preinduction period in which the trainee is given a complete overview of the school and the community. We are adapting this concept for the program of the training complex. The director of the complex should be responsible for organizing the preinduction program, part of which might well be given on the college campus and another part at the laboratory itself. The trainees are informed about the different kinds of experiences they are expected to undergo, together with appropriate instruction about the rules and regulations of the schools, their administration, and the board of education. In short, they are given a preview of the school system in order to set the stage for their more direct socialization when they first visit the school as trainees. In addition, they should be provided with a preinduction experience to the community—its various power groups, its recreational and health facilities, its legal and judicial system, the agencies that administer to children and youth including juvenile courts, and, in short, to all the social interests, organizations, and agencies that in one way or another impinge upon the schools, teachers, parents, and children.

The preinduction period should be positive in its tone so that the trainees approach the laboratory in a positive mood and with sufficient information to enable them to cope successfully with the demands they will meet. Much of the information necessary for their proper functioning can be supplied by representatives of the various organizations and

agencies invited to participate in the program. These representatives, however, will need to be informed about the purposes of the preinduction program and of its importance in the education of school personnel.

Let us assume that some 30 or 40 trainees will be assigned to begin their training in the elementary schools. They should probably meet as a group with representatives of the training teams, the college clinical specialists, and the director of the complex for further briefing on their duties and responsibilities and on the kind of activities they will be engaging in from time to time. Following this meeting they would go to their respective assignments in the schools. There are many details of operation that cannot here be imagined, but it seems reasonable to suppose that the clinical teams would meet with the director of the complex periodically to discuss common problems and to assess the training activities.

In addition to engaging in the clinical work, the trainees would also be enrolled in seminars or courses, conducted by a clinical teacher and a college clinical specialist, and designed to deal with generic as well as content-specific problems of classroom instruction. These courses might be in the teaching of reading, mathematics, social studies, or what not. In some cases, the work may be organized with reference to clusters of specific difficulties trainees are having. The nature of this concomitant work will doubtless vary from college to college and from laboratory to laboratory. But the details thus far given should serve to indicate the general outlines of a program.

A similar description could be given for secondary trainees, but since their program would differ only in details there is little reason to discuss their program. Both elementary and secondary programs will be further described in a later chapter.

Following the community preinduction period, the trainees would begin to become familiar with demographic data, social structure, welfare levels, occupational structure, and other relevant information. At the same time they would begin their laboratory study, coordinated with the seminar, and based upon a laboratory guide. The guide might call for trainees to help parents work with their children; attend meetings of city councils, school board meetings, court trials; work with juvenile agencies; become familiar with recreational facilities and health services; and so on.

Summary

The picture of a school of pedagogy projected in bold outline is what a professional school would conceivably look like if in fact it did exist. It recognizes a few compromises with the real world of pedagogical institutions. Yet it is not intended as a mere dream or a transcendent ideal, but a realizable picture of pedagogical education.

It allows time for the prospective teacher to acquire a liberal education and to prepare to enter the schoolroom with the confidence that comes from realizing that one knows how to cope with moment to moment events and with the more intricate problems that arise less frequently in the classroom. It provides for the preparation of researchers as well as specialized practitioners. And it recognizes that clinical facilities are necessary and that they must be provided cooperatively with the public schools.

The details of the picture—the knowledge and its uses, the domains of training, and the programs of instruction—must now be painted in. We turn to these in subsequent chapters.

Chapter 3.

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Chapter 4

Preprofessional Education: Outlines of a Program

Total preparation to enter the classroom as a full-fledged teacher requires completion of two interrelated programs: a preprofessional and a professional program, the latter consisting of a training component and a substantive pedagogical component. These components will be treated in the next chapter. In this chapter, we shall sketch the general outlines of a preprofessional curriculum.

The preprofessional curriculum covers 4 years of work leading to the bachelor's degree. It is just as important as the professional program to the teacher's success. What future teachers learn in this first segment of their education and how well they learn it will affect their future intellectual development and their success as students of pedagogy and as teachers.

The preparation of teachers in the subject matter they are to teach has often been considered unsatisfactory. Much evidence has accumulated in the last few years indicating that a considerable number of teachers do not know the mathematics they are supposed to teach and there is good reason to suppose that the same deficiencies hold in natural science, social science, and language arts. Admittedly, the data bearing on this question are spotty and not altogether conclusive. Nevertheless, there can be little question that the subject matter preparation of both elementary and secondary teachers should be strengthened.

Conditions Affecting Academic Preparation

Academic preparation of teachers must parallel the public school curriculum. What one is to teach in the elementary or secondary school must be studied at an advanced level in the college or university. As we consider what the teacher should know, we must keep an eye on the school curriculum and what its content requires of the teacher. At the same time, it is necessary to recognize that the various academic curriculums of the college or university were not designed to prepare teachers. Thus the school of pedagogy is faced both by the demands of the public schools for teachers who are knowledgeable with respect to the curriculum and by the task of persuading academic departments to make curriculum adjustments to meet the subject matter requirements for successful teaching.

Certain conditions account in large part for the lack of adequate subject-matter preparation. We have already referred to the effects of time restraints at the undergraduate level. Removal of professional studies from the undergraduate years should alleviate scarcity of time.

But there are still other restraining conditions. The academic departments have typically denied requests of the school of pedagogy for suitable courses for elementary teachers in the subjects they are to teach, often alleging that such courses were not of college grade. Nor have they been willing to waive the requirement of majors and minors, a requirement that often makes it difficult for elementary teachers to fit needed courses into their programs.

Furthermore, schools of pedagogy, no less than the nonpedagogical schools and departments, have been, and continue to be, possessed by the magic of the expression "general education." The referent even in the most stringent definitions is elusive. Its meanings are as numerous as the points of view regarding what education is all about. To some it means dipping into a number of disciplines, tasting general courses here and there; to others it means pursuing a program in the humanities which strangely enough often skirts philosophy, the integrative discipline par excellence.

As a result of preoccupation with the notion of general education, a considerable proportion of the prospective teacher's academic program, sometimes amounting to half of the credit hours, has

been distributed over a large number of fields from which the student has acquired only very superficial knowledge.

Because of the term's ambiguity and vagueness and the tendency of those who use "general education" to stand for a little of this and a little of that, the term will not be used to designate any part of preprofessional curriculum for school personnel.

It can hardly be overemphasized that the purpose of a preprofessional curriculum in pedagogy is to prepare the prospective teacher in the subject matter he or she is required to teach. That is the top priority and until it is provided for, there is no room for anything else in the program. What is needed is preparation in depth, or at least as much depth as time permits.

The preprofessional curriculum for prospective secondary teachers, including junior high school, will be considerably different from that of elementary teachers. Secondary teachers must be prepared in depth in at least two disciplines, for in small schools a teacher is likely to be responsible for instruction in two subjects instead of one, as in large schools. The elementary teacher, on the other hand, is faced with a broad spectrum of subjects, for the elementary school is seldom departmentalized. However, the subjects of the elementary curriculum are not treated in as much depth as in the secondary school. Hence, depth can be somewhat sacrificed for breadth in the preparation of the elementary teacher.

The Complementary Component of the Preprofessional Curriculum for Secondary Teachers

It goes without saying that the preprofessional curriculum of the secondary teacher should consist of two components: teaching fields and complementary areas. By the latter we mean subjects that reinforce, enrich, and expand one's knowledge of his or her teaching field and yet are not part of the disciplines that comprise the field. Physics, for example, is part of a teaching field. Philosophy of science can enrich and expand one's knowledge of physics and other sciences whereas literature is less likely to do so. Philosophy of science thus complements a curriculum in science.

Everyone is possessed in one way or another by orientations from which they can escape only under strong stimulation and even then for brief episodes, and they look at any program with these orientations in their heads. The multiplicity of conflicting views makes it unlikely that anyone can suggest a program that would be universally acceptable. In the final analysis, this means that the conception and program for teachers must be hammered out by representatives from pedagogy, the public schools, and the relevant university disciplines.

Despite these difficulties and with the knowledge that there will be objections raised to any suggestion, we shall nevertheless indicate the scope of knowledge from which the program should be formed and an outline of its content. Such a view of knowledge will sensitize us not only to the range of knowledge but also to some of the domains into which it can be classified.

The time when the totality of knowledge could be encompassed by a single mind has long since passed. Nevertheless, a number of efforts have been made in recent years to provide a comprehensive map of knowledge. One of the most thorough, and for our purposes most useful, is the categorization of knowledge by Tykociner.[1] He classified knowledge into twelve areas, as follows:

The arts—architecture, choreography, dramatics, graphic arts, industrial design, landscaping, literature, music, painting, and sculpture.

Symbolics of information—linguistics, mathematics, logic, and information theory.

Physical sciences—physics, chemistry, astronomy, geology, and mineralogy.

Biological sciences—botany, zoology, taxonomy, morphology, cytology, genetics, physiology.

Psychological sciences—experimental, developmental, abnormal, and others.

Sociological sciences—sociology, human ecology, demography, social institutions, ethnology.

Sciences about the past—history of the world at large, aggregates of human beings, and of society and its culture.

Life sustaining—agriculture, medicine, technology, and national defense.

Regulative sciences—jurisprudence, political science, economics, and management as administration.

Disseminative sciences—education, library science, journalism, and others.

Zetetic sciences—taxilogy, problematology, general methodology, and others.

Integrative sciences—philosophy, theologies, and others.

Each of these categories is connected to the one following it by a hybrid science. For example, the physical and biological sciences are related by biochemistry and the social and historical sciences by anthropology.

To select from this array of knowledge what a future teacher should study to be able to discuss with students, colleagues, and citizens questions of personal and intellectual significance, to serve as a model of an educated person, and to increase the possibility of continued intellectual growth is a task almost too much for the mind to fathom. Yet it is done over and over again, however crudely, every time a student and an advisor design his or her program leading to the bachelor's degree.

The task is difficult enough in its own right. Yet it is made even more complex by the conglomerate character of university curriculums. Except for a few traditional courses, those comprising the university curriculums today were designed to satisfy a few steps in a sequence, to introduce new knowledge, or to satisfy the interest of an instructor, courses determined by the latter perhaps being the most numerous. Consideration is not often given to the question of how the courses are to serve as an instrument for the intellectual expansion of students.

Moreover, in the loose elective system of today, it is easy for a student to receive a bachelor's degree with little basic knowledge and no discipline in intellectual skills and without having faced any serious intellectual question. Teachers who attain only this level of learning are certain to reduce the possibility of raising the quality of education in the public schools. For this reason, if for no other, the preprofessional program must be designed to ground the teacher in the rudiments of at least a few areas of knowledge.

Although any set of recommended courses will doubtless meet with objections, perhaps it is possible that all can agree on certain general functions of knowledge. The functions attributed by Tykociner to his areas of knowledge have much to commend them. They serve to group the areas and these groupings in turn provide a convenient way of indicating areas of concentration for both complementary studies and the teaching field.

TABLE 1
Functions of the Areas of Knowledge

AREAS	FUNCTIONS
1. Arts and symbolics of information	To develop systems of symbolic representation of perceptions and cognitive activity for communication
2. Physical, biological, psychological, and social sciences	To systematize knowledge of basic facts and their relations
3. Historical, sustaining, regulatory, and disseminative sciences	To systematize knowledge of the past, project future needs, conduct regulative activities, and communicate information
4. Zetetic sciences	To promote the growth of all arts and sciences
5. Integrative sciences	To create an all-embracing synthesis

To be thoroughly educated, to have a renaissance mind, is to have mastered these areas and their functions. But this is an achievement beyond the grasp of anyone today. So educated persons, aside from their field of specialization, must be characterized as less than masters of these domains. For a secondary teacher, the scope of complementary studies should consist of a 15 semester hour sequence in each of two of these domains or a total of 30 credit hours, exclusive of area 4 which is more suited to students who plan to pursue a research career. Even for them, however, work in this area should more appropriately be taken at advanced levels. Since the social and psychological sciences, area 2, are to be included in the prepedagogical curriculum, to be discussed in a moment, they should likewise be excluded.

The areas chosen for the complementary component should enrich the student's teaching fields. Students who are specializing in the natural sciences should concentrate in the symbolics of information and the integrative sciences. For example, in the area of symbolics, science students should concentrate upon mathematics, and, in the integrative sciences, upon the philosophy of science and epistemology.

Students who are specializing in the social and historical sciences should complement their teaching fields by work in the integrative sciences with special emphasis on the philosophy of the social sciences. In addition, they should take studies in the area of symbolics with special emphasis on mathematics or linguistics.

The areas that complement symbolics of information when mathematics is the center of concentration are the integrative and physical sciences.

Those who are planning to teach English, including literature, as the linguistic component of area one, should choose as complementary areas the integrative sciences with special emphasis on analytic philosophy and the historical sciences.

These are rough suggestions to illustrate the point that the complementary component should serve not only to provide a breadth of knowledge but also to strengthen the prospective teacher's grasp of the disciplines he or she will teach in the secondary school. For too long we have allowed something called general education, something apart from the prospective teacher's field of specialization to comprise a large part of his or her program. The upshot of this has often been that prospective teachers missed the opportunity to understand the various dimensions of their specialty and the relations among the disciplines. Consequently, teachers are typically unable to grapple with the more fundamental problems concerning the relation of their specialty to the deeper concerns of adolescent students about destiny, truth, and life.

Preparation in the Student's Teaching Field

The secondary teacher should be prepared in at least two disciplines, consisting of approximately 30 semester hours in each. If the student intends to teach the physical sciences, he or she might choose to specialize in both physics and chemistry, or the biological sciences paired off with one of the physical sciences. If the student intends to specialize in the social sciences and history, 30 semester hours would be chosen from area 2 and 30 from area 3. The student preparing to teach English would specialize in area 1. Likewise, students looking forward to becoming teachers of foreign languages would concentrate in the same area.

While the high school teacher is not ordinarily expected to teach either arithmetic or the language arts, nevertheless every secondary teacher should be proficient in the rudiments of arithmetic and in spelling, grammar, reading, and writing. They should be required to take a competence examination over these areas for the purpose of screening out those who need remedial work. Justification of this requirement is the fact that reasonable correctness in the use of the English language is expected of all teachers and the further fact that many students now reach high school deficient in the basic skills of mathematics and language. A secondary teacher who is unable to help students who are thus deficient, but are not serious remedial cases, is ill-prepared.

The specialized program of prospective secondary teachers, like the complementary component, will evoke controversy and call out a multiplicity of points of view and conceptions of what knowledge is needed and how it is to be acquired. In order to thrash out these differences of opinion and to arrive at the best possible program of preparation in the teaching field and to assure that the complementary component reinforces and deepens the prospective teacher's area of specialization, the committee that decides the complementary program

should also decide the specialized preparation. This committee should probably be a continuing committee in order to make adjustments in the program as problems arise and further experience indicates the need to make adaptations.

To summarize, the program of students preparing to teach in the conventional disciplines should approximate the following work in the teaching fields and complementary studies.

Considerable depth is provided for in at least two areas and a greater degree of thoroughness in the disciplines of the areas the student chooses as his or her teaching fields. Such a program should obviate the practice of taking one or two courses in this and that discipline, resulting in superficial knowledge and no sense of real accomplishment.

The complementary component is marked by some sense of thoroughness in basic concepts and principles that illuminate wide domains of experience. The levels of discourse one learns in analytic philosophy, the nature of knowing, the nature of explanation, the principles of literary criticism, and the nature of mathematical knowledge are cases in point. To acquire such knowledge is not only to study the relevant disciplines but also to go beyond beginning courses. What the prospective secondary teacher needs is not superficial acquaintance but depth. The foregoing program provides some depth in at least two of the four recommended areas of knowledge in addition to the teaching specialties.

TABLE 2
Program for Secondary Teachers

SUBJECTS	SEMESTER HOURS	COMPLEMENTARY STUDIES	SEMESTER HOURS
1. Natural sciences (choice of two)			
—Sequence in physics	30	Sequence in symbolics	15
—Sequence in chemistry	30	Sequence in integrative sciences	15
—Sequence in biology	30		
2. Social sciences and history			
—Sequence in economics		Sequence in integrative sciences	15
sociology or anthropology	30	Sequence in symbolics	15
—Sequence in history	30		
3. English			
—Sequence in symbolics and		Sequence in integrative sciences	15
literature as art form	30	Sequence in history	15
—Elective sequence	30		
4. Mathematics			
—Sequence in mathematics	30	Sequence in integrative sciences	15
—Elective sequence	30	Sequence in logic and language	15
5. Foreign languages			
—Sequence in one language	30	Sequence in symbolics	15
—Sequence in second language	30	Elective sequence	15

Academic Preparation of Elementary Teachers

What academic preparation elementary teachers should have is a question that has not been studied with much care. An early proposal by Bagley set forth the notion of professionalized subject matter, by which he meant that academic knowledge should be presented and studied in such a way as to show how it can be adapted and used in actual instruction at the elementary level. This has been accomplished, but the emphasis has tended to be more upon the techniques and procedures of teaching than upon study of the content itself.

Many elementary teachers finish high school with only a limited competence in arithmetic and even less in algebra and geometry. They complete college work with no additional study in mathematics and consequently enter the classroom inadequately prepared. This fact has shown up time and time again in competence tests of teachers and indirectly in the fact that achievement of public school students in mathematics is low. The same observation holds for the rudimentary elements of the language arts—spelling, grammar, and composition.

The curriculum of the elementary school consists of three parts: the content and skills of mathematics and language arts; the skills and values of art, literature, and music; and the facts, concepts, and principles of content subjects—biological, physical, and social sciences. Except for art, music, and physical education the elementary teacher is generally expected to teach all of the subjects of the elementary curriculum.

Considering the breadth of the elementary curriculum, what should be the complementary component of the elementary teacher is a bogus question. To have sufficient knowledge to teach the elementary curriculum with enough margin to feel comfortable is to have acquired considerable knowledge in each of Tykociner's areas except zetetics.

What then should be the subject matter preparation of the elementary teacher? We suggest a program as shown in Table 3.

TABLE 3
Program for Elementary Teachers

Area 1. Arts and symbolics of information	
—two courses in art and music	6 semester hours
—sequence of literature including children's literature	12 semester hours
—sequence in English and linguistics	15 semester hours
—sequence in mathematics	15 semester hours
Area 2. Physical, biological, psychological, and social sciences	
—sequence in the physical sciences including both physics and chemistry	21 semester hours
—sequence in biological sciences	12 semester hours
Area 3. Historical, sustaining, regulatory, and disseminative sciences	
—a sequence in history including world and American history	15 semester hours
—a sequence in economics or political science	6 semester hours
	102 semester hours

The elementary teacher, as he or she enters the school of pedagogy, would have completed 102 semester hours of academic work directly related to the elementary curriculum, and, as indicated below, 18 additional hours of prepedagogical studies, or a total of 120 semester hours.

Institutional committees responsible for designing the program will naturally develop their own ideas of how the credit hours should be distributed with respect to the areas of knowledge. And they may even question the areas, but areas 1, 2, and 3 certainly parallel most closely the elementary school curriculum. Their main effort, however, should be to persuade academic departments to offer courses designed especially for elementary teachers.

Prepedagogical Curriculum

Students intending to enter pedagogy should be prepared in a prepedagogical curriculum. All can agree that the student preparing to become a teacher should be well grounded in the behavioral sciences. This agreement rests upon the fact that since the teacher is intimately involved with students who vary—physically, mentally, emotionally, culturally, ethnically, and socioeconomically—they consequently should be prepared in human development, conceptions of learning, conceptions of intelligence and its measurement, and principles of sociology and anthropology.

The large proportion of students who now enter the study of pedagogy have practically no academic preparation in these areas, and the amount of time available for the study of them in their pedagogical preparation is almost zero. Some attempt is made to provide instruction in them by social foundations courses and by elective courses in educational sociology and anthropology. Furthermore, pedagogical psychology is often devoted to teaching elements of academic psychology that should have been acquired before admission to pedagogy.

In order to rectify this condition and to provide an adequate preparation for the study of pedagogy we strongly urge the development of a prepedagogical curriculum. This curriculum should consist of at least 9 hours of psychology including learning and motivation, human development, and intelligence and its measurement. In addition, the program should include 9 hours of work in sociology distributed over community sociology, anthropology, and human ecology. This work will free the pedagogical school from the necessity of providing background for the study of academic pedagogy.

Elective Courses

There are those who will hold that the program suggested in the preceding pages is too rigid and that there is no room for the student to elect courses to satisfy his or her particular interest. A great deal can be said for the claim that students should participate in shaping their own education and that they should have extensive leeway to select courses that in their view are relevant to their interests and their development.

It should be noted, however, that the principle of elective courses has not led over the years to stronger preparation of the teacher for classroom instruction. It was never intended even by President Elliot, the originator of the elective system, that the student would simply be free to taste any and every subject and gain no depth or discipline in the pursuit of academic knowledge. In a professional field where the academic preparation of students is closely associated with the work they are to do, as in the case of teachers, there is less room for the elective principle to function than in cases where the academic preparation is not closely associated with occupational responsibilities. It would appear, therefore, that elective courses should be strictly limited. Perhaps they should be allowed chiefly in cases where proficiency in a required course is demonstrated, where substitution is an equivalent, or where the overlapping of concentration and complementary studies occurs.

Summary

The foregoing programs for prospective secondary and elementary teachers represent an attempt to satisfy three objectives: to provide depth of learning; to so shape complementary studies as to enrich and reinforce the secondary teacher's specialty; and to build the credit hours currently assigned to so-called general education into the elementary teacher's subject matter preparation. These programs are intended as examples and neither as prescriptions nor as imperatives. However, the scope of knowledge worked out by Tykociner, we believe, provides a most promising framework within which to begin the reconsideration of the academic preparation of teachers.

Chapter 4.

1. Tykociner, Joseph T. *Outline of Zetetics.* Philadelphia: Dorrance, 1966.

Chapter 5

Toward a Program of Pedagogical Education

There are two levels of pedagogical education: basic preparation in the science and art of pedagogy and specialization. It was proposed in Chapter 3 that each of these levels be allotted 2 years of intensive study. The purpose now is to propose a program for each of these levels.

Faculties of pedagogy are sharply divided on many aspects of pedagogical education. It is, therefore, unlikely that any program, however well conceived, will gain the approval of everyone. Nor is it likely that anyone can propose a program so optimal that it can, or should be, instituted without modification. Whatever its shortcomings, the program we propose is based on the belief that basic preparation should be focused on the development of scientifically grounded skills, where these are known, and that informed judgment should be exercised in their use. Where such skills have not yet been empirically established as reasonably dependable, professional wisdom (craft knowledge), rather than personal opinion or doctrines, should prevail.

The character and quality of a program are conditioned by the number and quality of students. This is borne out by the experience of other professional schools and departments that require clinical training. Hence the first and most important question for faculty consideration is that of how many students it can train.

Admission to the School of Pedagogy

In the last 50 years, a great deal of research has been done to test various criteria for admission to the study of pedagogy.[1] One criterion after another has been tested only to find that in most instances the relationship between teacher-effectiveness variables and the criterion is typically negligible or a low positive relationship at best. What all this research shows is not clear. It can be argued that this lack of relationship is attributable to ineffective training programs. If a program makes little difference in the performance of students when they enter the classroom as teachers, the criteria of admission may simply be predictors of initial teaching ability.

From the very beginning of pedagogical education the policy of colleges and universities has been to produce teachers to fill jobs, rather than to produce quality personnel. If there is a demand for teachers, hire more instructors to increase teacher production. Faculties of pedagogy thus increased in size with each new demand for teachers. Big enrollments, big faculties, big production—that is the tune to which pedagogical schools have danced throughout this century. If schools of pedagogy are to continue that dance, it is folly to speak of admission criteria.

Once a faculty has determined the number of students it can properly train, an admission policy can be worked out. While it should be based upon the best available knowledge, certain general considerations should prevail. Admission to a school of pedagogy should be a significant event in the life of the student. Entering a school of pedagogy today is no more impressive than changing from one department to another. The admission procedure should emphasize that the student is entering a profession that profoundly affects the lives of every individual and ultimately the strength and well-being of the nation; that it is an occupation to be taken seriously and calls not only for the utmost ability of the individual but also for complete dedication. The admission procedure should include a ritual to impress upon students that they are asking for a chance to serve humankind in the oldest and most honorable profession.

One of the features, revealing the bankruptcy of current admission policies, is the typical introductory course to enable the student to decide whether he or she wants to pursue a pedagogical career. While it is important to know whether a candidate for admission has reason to believe that teaching would be satisfying, a course for that purpose is gratuitous and worthless. While almost all colleges require an introductory course to acquaint students

with schoolwork, still more than a third of the graduates never entered the public school classrooms.

Certainly a professional school of pedagogy will not leave to the applicant the decision to enter. It will decide whether or not the applicant is among those candidates who show promise of becoming effective, dedicated members of the profession. It is folly to devote the time and energy of a pedagogical faculty, not to mention clinical teachers in the public school, to the education of individuals who are not going to teach anyway.

When students are admitted, and before they begin courses, faculty members and public school teachers should impress upon all of them the importance of the teacher's work. In addition, the various opportunities in education should be explained and the various departments thoroughly described by their representatives.

It should now be clear that there are three purposes of an admission policy: first, to decide the number of students a faculty can properly train; second, to make sure, at least as sure as possible, that those who are admitted and trained shall be those who are most likely to enter teaching when they graduate and to serve the children and the schools with maximum effectiveness; and third, to establish a ritual through which students are introduced to the study of pedagogy as an important life calling.

Focus of Basic Program

The first thing to note about programs of pedagogical education today is that they have no focus. In some schools of pedagogy the courses number almost a thousand. Some of these courses are designed to produce effective teachers and other school personnel. But the great preponderance of them are offered because they satisfy the interests of particular instructors and departments.

But even though some of the courses were designed to produce effective personnel, in reality they have no focus and add up to no particular set of competencies. It is true, of course, that at the undergraduate level there is a brief sequence of courses leading to student teaching, but these courses, all too often, are shaped by instructors to their own interests. Required courses in pedagogical psychology, for example, often vary from section to section, depending upon the particular interests and whims of the instructor.

The same is true of other courses. In some of these the content is so varied that no text is used, leading many students to believe that the instructor is more important than the course. Indeed, some professors have been known to advise students to select instructors rather than courses. The logic of this injunction is to substitute a program of persons for a program of knowledge and skill. This may be justifiable for so-called general education, but for professional training it is an admission that anything goes so long as particular instructors go with it.

The basic program should be shaped by a single overriding purpose; namely, to prepare prospective teachers for work success in the classroom, the school, and the community. Every course should be scrutinized with respect to its contribution to this end. If this were done, a large number of courses would be eliminated at the level of basic preparation. Candidates for deletion would be introduction to education, history of education, philosophy of education, social foundations of education, and a host of others including courses in learning and development provided for in undergraduate study. Work in these areas can be offered in programs of specialization leading to the doctor's degree.

Basic Program: First Semester

The first semester should be devoted primarily to the mastery of clinical knowledge and skills of observation. All can agree that knowledge of the characteristics of children and youth, concepts and principles of teaching, concepts and principles of evaluation, and of the impact of home and community on children and schools are involved in school and classroom work. Accordingly, we suggest that the first semester should be devoted entirely to four courses: exceptionality, pedagogical psychology, measurement and evaluation, and the school and community.

Each of these courses should consist of two components: a formal course and either clinical observation or laboratory work, depending on the content of the formal course. The formal course should carry 1 hour of credit for each clock hour of classwork, while the clinical work should require 3 clock hours for each credit hour. Although these components must be closely coordinated and integrated for instructional purposes, they should be treated separately for purposes of evaluation and grading.

Separation of these components will safeguard the integrity of both clinical work and courses, for poor clinical performance will not then be compensated for by good course work and vice versa. In Table 4 is a list of courses and the allocation of credit and clock hours:

TABLE 4
Program of Studies: First Semester

COURSES	SEMESTER HOURS	CLOCK HOURS PER WEEK
Exceptionality	2	2
Clinical Observation and Experience	2	6
Clinical Psychology	2	2
Clinical Observation and Experience	2	6
Measurement and Evaluation	2	2
Evaluation Laboratory	2	6
School and Community	2	2
Field Laboratory	2	6
	16	32

The justification of these courses for initial study is not far to seek. The concepts and principles pertaining to exceptionality provide a framework within which to understand all children. Much is to be said for the claim that normality, whatever it is, is best comprehended when viewed in the context of the total range of human variability. To understand the mentally retarded, the gifted and the talented, the emotionally handicapped, auditory and visually disabled, speech and language disabled, societally neglected, and those with physical and specific learning disabilities, is to be well on the way to understanding all children and to becoming a knowledgeable teacher.

The course in exceptionality should be systematic, thorough, and accompanied by clinical observation and experience with students who exemplify the various categories of exceptionality. This means that the work in the concepts, principles, and facts of exceptionality should be accompanied by a clearly developed plan of clinical work in the training laboratory.

Pedagogical psychology should take full account of the fact that the student has already had work in behavioral sciences, covering human development and learning, and that the groundwork has thus been laid for pedagogical psychology to become a clinical study. Much of the content now included in pedagogical psychology will thus be deleted, at least in the basic program. Among the topics eliminated will be conceptions of learning and motivation, heredity and environment as related to intelligence and personality, definition and measurement of intelligence, and personality development. The time thus saved will enable instructors to zero in on generic concepts and principles underlying the domains of training: observation, diagnosis, planning, management of conduct, grouping, instruction, communication, and evaluation (see Chapter 9). Pedagogical psychology will thus come into its own as a distinct professional discipline and cease to be an adjunct to academic psychology.

The concepts and principles should be taught whenever possible with protocols,[1] minicourses, and such other visual, auditory, and transcribed materials as exemplify them behaviorally. Furthermore, planned systematic observation and classroom experiences in the training laboratory should parallel the course work, beginning with controlled observation in one training domain and proceeding to another until the total range of domains is completed. The concomitant work in the laboratory

should be planned in cooperation with clinical teachers and the work jointly conducted by campus instructors and clinical teachers. The utility of systematic observation and experience in the laboratory cannot be overemphasized when coordinated with course work and closely supervised.

Measurement and evaluation should be focused on the knowledge and skills a teacher can use in the classroom and to some extent on the organization and interpretation of data bearing on problem cases and on the programs and policies of the school. This means, among other things, that a good part of the work should deal with diagnosis and feedback. The prospective teacher must learn to use test materials in order to uncover learning difficulties and to relate feedback to them, bearing in mind that evaluation should be primarily for the purpose of helping children to learn and only secondarily to ascertain the levels of their achievement.

The formal course in measurement and evaluation should be accompanied by laboratory experiences in which the trainee would study, under supervision, different types of tests, their purposes, and their validity and reliability. Furthermore, the laboratory should provide practice in the development of tests, in giving tests, and in organizing and interpreting the data therefrom.

Although teachers spend most of their time in the school and classroom, their work is nevertheless affected by the home and community. Studies abound that indicate the influence of the home upon the student, although the effects are not so overwhelming as has sometimes been supposed. While this influence is good reason for the prospective teacher to study community life, it is only one of the reasons for becoming acquainted with community structure and the nature and character of home life in the various areas of the community. Many children and youth today are disadvantaged in various ways and are assisted in their development by all sorts of community agencies and institutions. The requirements of the teacher are such that every prospective teacher should study the social classes, the welfare levels, the occupational structure, the power structure, the recreational resources, the system of juvenile courts, and such other community agencies as affect children and youth.

The study of community should take into account the work the students will have already had in sociology and anthropology at the baccalaureate level and should emphasize clinical experiences. This can be accomplished by a parallel laboratory in community life to take the student directly into the various socioeconomic areas of the community, the political and economic power systems, as well as the various institutions and agencies that administer to the many needs of youth. Emphasis should be placed upon ways of studying the community as well as upon the techniques of observation and the interpretation of firsthand experience.

To sum up, the first semester is oriented primarily to the study of generic clinical knowledge and to the development of skills of observation. It combines formal classwork with an emphasis upon observation, using both media and actual situations in the school and community.

Learning the skills of observation, however, represents only part of the skills required of a teacher. The other part consists of operational skills concerned primarily with diagnosis and instruction. In addition to generic knowledge and skills, teachers must also use content-specific knowledge and skills. Besides, they must also understand the educational program and how their work fits into the total scheme. It is to this that we turn in the second semester's work. This semester will therefore be concerned exclusively with the total school program from early childhood through the high school and with instruction in the various subjects.

Basic Program: Second Semester

With the foregoing purpose in view, we propose a program of studies as shown in Table 5.

When we speak of the curriculum we do not refer to theories of curriculum development but rather to the actual curriculum of the school. It should be analyzed in the light of certain concepts and principles. For example, the existing curriculum entails two kinds of sequencing: program and instructional. Program sequencing is the order in which the major components of the curriculum occur from year to year. By instructional sequence is meant the ordering of the items of content conducive to day-to-day learning. The concepts and principles on which program sequencing is based should be thoroughly explored, and the sequencing of instruction should be examined in relation to the content to be taught. Instructional sequencing in arithmetic, for example, is not the same as sequencing in literature or history, a difference attributable to

TABLE 5
Program of Studies: Second Semester

COURSES	SEMESTER HOURS	CLOCK HOURS PER WEEK
Curriculum and Instruction	2	2
Curriculum Laboratory (including initial teaching experience)	3	9
	5	11
Concurrent Specialized Courses—Early Childhood Through Middle School		
Pedagogy of Art and Literature	2	2
Pedagogy of Language Arts	2	2
Pedagogy of Mathematics	2	2
Pedagogy of Reading	2	2
Pedagogy of Science	2	2
Pedagogy of Social Sciences	2	2
	12	12
Concurrent Specialized Courses—Junior and Senior High School		
Pedagogy of Major Subject	2	2
Pedagogy of Minor Subject	2	2
Pedagogy of Secondary Reading	2	2
Electives	6	6
	12	12

disparities in the language and logic of the disciplines.

Another theme to be explored is content selection. By what criteria was the subject matter of the curriculum selected? These criteria should be expressly formulated and examined by reference to what is known about child and adolescent development, learning, and the utility of knowledge. Likewise the principles of content organization should be examined with care, not merely in abstraction but in reference to the structure of courses of study, textbooks, workbooks, and other materials of instruction.

As a rule, future high school and elementary teachers have been separated in their study of the curriculum. We suggest that this practice be abandoned. One of the persistent problems of schooling has been that of articulating not only the different grade levels but also the different segments of the school—primary, intermediate, junior high school, senior high school, and college. These problems can be obviated, at least partly, if the elementary and high school teachers are familiar with the entire curriculum from early childhood through the high school. For this reason we strongly urge that the course in curriculum be required alike of all prospective teachers regardless of what they will teach.

Two programs, one for early childhood through middle school and one for junior and senior high school, would be taken concurrently with the general course in curriculum and instruction. Every prospective elementary teacher would be required to take a 2-hour course in each of the six specialized areas of the elementary curriculum in addition to the general course consisting of 2 semester hours plus the curriculum laboratory of 3 hours. Pedagogy of the different subjects would be integrated with work in the curriculum laboratory so that each student becomes familiar with instructional and learning materials of each area of instruction and for each grade level. Furthermore, the materials and instructional principles and skills required for mainstreaming should be emphasized.

The same arrangement would hold for students preparing to teach in the junior and senior high school, although the pedagogy of the subjects for each student would be limited to major and minor subjects. However, these students would be required to study their teaching fields from the early childhood program through the twelfth grade.

In addition, they would be expected to take a course in secondary reading, since many problems of learning at the high school level are rooted in the inability of students to read in the different fields of instruction.

The curriculum laboratory should provide opportunities for the high school trainee to become familiar with such learning materials as textbooks, workbooks, and their use. In addition, the trainee should become familiar with instructional materials, especially films, video materials, audio materials and such other technical instruments as may be conducive to instruction and learning.

A part of the laboratory time should be set apart for all prospective teachers, both elementary and high school, to observe classrooms and to engage in actual teaching during this semester. Such initial teaching will give the students hands-on experience with the use of materials as well as provide them with a sense of the clinical work to follow.

Basic Program: Third and Fourth Semesters

The students now enter the second year of professional study, following a year in which they have had an opportunity to acquire basic clinical knowledge, both generic and content specific, together with skills of observation and a brief introduction to actual teaching. In addition, they have explored the community and its agencies and institutions.

This year is to be devoted to full-time work in a training laboratory. How the work is to be organized and conducted can be decided only as plans are formulated, revised in the light of experience, and tried out and revised again and again until the training operation works smoothly and effectively. We can do no more here than suggest one possible approach.

Before the students enter the laboratory as trainees, they should be thoroughly informed about the rules and regulations of the school, the various positions and their functions, and their own duties and responsibilities as trainees in the system. They should clearly understand that they are there to learn to teach and not to reform the school or to criticize the people with whom they work, for it is important that they learn professional conduct as well as knowledge and skills.

Each trainee should begin in some capacity short of full classroom responsibility. The trainee may serve as a teacher of a small group, as a diagnostician working with one or two children who need special help,or as a tutor of one or more exceptional children.

Following this initial period of experience, the trainee should begin to be responsible for a larger proportion of a teacher's work. If the trainee is a prospective elementary teacher, he or she should begin to assume responsibility for two or three different subjects and after a brief period of time for the entire spectrum of subjects. The progressive increase in the amount of responsibility should reach a maximum point by the end of the first half of the year. The second half should be devoted to complete responsibility for classwork or as nearly that as the training laboratory can allow.

If the trainee is a prospective high school teacher, the same initial period of introduction should be followed. By the end of the first half of the year the trainee would have had experience in teaching both major and minor subjects and in more than one section of each. The second half of the year should be devoted to as full a schedule of teaching as the training facilities permit.

It would be desirable were the program to allow trainees to acquire experience in more than one school. The logistics of this may be difficult to work out, but attempts should be made to test its feasibility. It should hardly be necessary to point out that all trainees would have experience in working with parents, committees of teachers as they plan programs as well as day-to-day operations, and in such other activities as teachers engage in.

Concurrently with the teaching experience, each trainee should be expected to attend a clinical seminar, conducted by a campus instructor and one or more clinic teachers, to help the trainee advance his or her knowledge and skill. These seminars offer opportunities to review videotapes of the trainee's performance and to diagnose deficiencies that may require more intensive training by such means as protocols or microteaching.

The trainee should have been under review from the very beginning of professional study and should not be passed from one level of preparation to another without satisfactory performance. The

final evaluation should be made early in the second half of the last year to determine deficiencies in knowledge and skills so that they can be remedied before the end of the year. Inasmuch as the most promising candidates for teaching would have been admitted to the program, the faculty is obligated to use all the means at its disposal to see that the student is successful as a trainee.

The faculty-student ratio is fundamental to the program's effectiveness. Enrollment in formal courses can probably run as high as a hundred or more students per section without serious impairment of instruction. However, laboratory courses, being primarily clinical in nature, should not exceed 10 students per section. This approximates the enrollment in other professional schools and departments where clinical work emphasizes observation. In any one of the first semester basic courses, exceptionality for example, a section of one hundred students would require 10 clinical sections.

The second year of the basic program, being clinical work where skills of performance are primary, would require a ratio of not more than one or two trainees per clinical teacher. Clinical teachers will be drawn from the public school and specially prepared to conduct clinical work in both classroom and school. In addition, of course, a number of campus instructors would be required to conduct clinical seminars and to carry on follow-up activities.

Follow-Up

Ideally, graduates of the program should serve at least a year as an intern under the supervision of trained personnel. Whether or not this is realized, the school of pedagogy should establish a team of campus instructors and clinical teachers to follow up each graduate. Voluntary seminars, meeting monthly or bimonthly, as the need may indicate, should be set up to assist graduates with problems of induction and with difficulties encountered in instruction and in classroom management and control.

Programs Leading to the Doctor's Degree

In chapter 3, two doctoral degrees were proposed: Doctor of Pedagogy, a practitioner's degree; and the Doctor of Philosophy, a research degree. These degrees call for specialized programs and can be discussed here only in general terms.

Programs leading to the Doctorate in Pedagogy should consist of three components: further work in academic pedagogy such as the behavioral sciences and the social and intellectual background of educational institutions; work in a field of specialization; and clinical training.

To suggest courses for a wide diversity of specialized training would be of little, if any, value. But it may be appropriate to explore certain areas for consideration.

Because of the tendency of some pedagogical leaders as well as citizens to concoct all sorts of innovations for the improvement of schooling, almost all of which have been tried at one time or another, it is important for those who are preparing to become educational leaders to know the history of educational thought and practice. It is also useful for educational leaders to know some of the history of schooling, especially in the last two hundred years when the school has been interwoven with certain social and economic developments having profound effects upon today's educational policies and programs. There is also justification for the study of pedagogical classics in relation to the political and social contexts in which they emerged. This should enable the student to view the pedagogical thought of our own time with much more wisdom and insight than is generally the case.

The work in the behavioral sciences should emphasize not only the cutting edge of the psychology of human development but also that of learning. Naturally, the study of these sciences should emphasize the points at which they impinge upon educational thought and practice.

The sociology and economics of education should be considered, especially for students of administration. Perhaps these subjects should be taught in a single course because of their close interrelationship. This work should deal not only with the social and economic conditions that influence the individual and the school but also with the influence of schooling upon society and particularly the utility of schooling as it affects certain aspects of society—its economic well-being, its political stability, its military power, and its influence among nations. In addition, it should treat the effect of schooling upon the community. We are accustomed to thinking of the advantages of schooling solely in terms of

individual benefits, but the truth is that the advantages of schooling accrue to almost every aspect of community life.

Considering the fact that a great deal of educational knowledge is couched in statistical language, anyone preparing to assume a leadership role in public education should have command of statistics. This holds also for measurement and evaluation. Individuals who must deal with school problems in a broad sense must be able to organize and interpret data bearing upon various practical problems of educational management and finance.

The language of pedagogy is so entangled with everyday language and so fraught with metaphors, both dead and living, that every educational leader should be introduced to philosophical analysis of language after the fashion of the analytic school. This should go a long way toward freeing thought of the pitfalls of language encountered so constantly in pedagogical discussions and discourse.

In addition to work in academic pedagogy, the student should follow a well-planned program in an area of specialization. Among these areas are teaching, special education, school psychology, pedagogical education, administration, evaluation, counseling, and curriculum. Specialization in such areas should entail extensive clinical experience in training laboratories where the clinical instructor and a college advisor work together in designing and conducting a program of clinical experience. The objective is to develop a highly trained practitioner. To this end the student should be evaluated at each level of the program and additional instruction given wherever deficiencies are identified.

The sole objective of a program leading to the degree of Doctor of Pedagogy is to develop a competent practitioner. As emphasized in chapter 3, it is not a research degree and no dissertation or paper in lieu thereof should be required. To safeguard the program, however, it is necessary to establish a system of evaluation by which to decide the competence of the individual as progress in the program is made. In all probability it will be necessary to build an evaluation package for each individual containing records of performance on video and audiotapes, records of systematic observation by instructors, the student's written papers and examinations, and any other sources of information that may be useful. Thoroughness and competence should be the criteria. While the program covers 2 years of professional study, most students will find it necessary to spend 3 years to qualify for the degree.

The program leading to the Doctor of Philosophy degree should include fundamental work in the various foundation subjects such as psychology, mathematics and statistics, and methodology. Although fundamental knowledge as well as mastery of methods and techniques of research are indispensable, they are not sufficient. The research student must also work closely with one or more professors who are deeply engaged in research, rather than working alone on some quasi-problem.

The present practice of requiring students to do a dissertation, often insignificant if not worthless, just to complete the requirements for the Doctor of Philosophy degree should not be tolerated. The student should have done a significant study for the doctor's degree. The research for the doctor's degree of all too many faculty members has been of low quality and typically of no particular significance. Indeed, it is not unusual today for students to be told that they should choose some problem for research that can be readily completed. This practice of requiring research for a doctor's degree, treating it as something that the student must do just as he or she is required to pass courses and do term papers, tends to depreciate not only the quality of research but also the student's confidence in, and respect for, research itself.

In view of what has just been said, it is not too much to add that no school should offer a doctoral program unless it already has a basic program and then only if it has sufficient staff to do so. Considering the requirements of the basic program, it seems obvious that only a few schools should offer work leading to the professional degree of Doctor of Pedagogy. The research program leading to the Doctor of Philosophy degree should be limited to those schools that have a basic program and enough professors actively engaged in research to provide not only technical courses but also apprentice experience with research professors who are conducting studies.

Summary

In this chapter we discussed the bare outlines of a basic program of pedagogical preparation and doctoral programs only in the most general terms. But the argument should be clear enough to indicate that the basic purposes of a professional program are, and should be, to see that prospective teachers master clinical pedagogical knowledge, both generic and specific; to discipline them in observational skills; and to see that they master the basic skills of planning, diagnosing, feedback, reinforcement, management of instruction and learning, evaluation, and communicating with students, peers, and parents. The doctoral program for the practitioner extends the basic program into areas of specialization where academic pedagogical knowledge as well as clinical knowledge is emphasized together with specialized skills. The research program does not prepare the student to train school personnel, but to do research, to train researchers, and to give instruction in academic pedagogical subjects.

Chapter 5.

1. Schalock, Del. "Research on Teacher Selection." In D. C. Berliner (ed.) *Annual Review of Research in Education*, Vol. VII. In press.
2. The Protocol Materials Program began in the summer of 1970 under the direction of B. Othanel Smith with the support of the Bureau of Educational Personnel Development of the U. S. Office of Education. Protocol materials are reproductions of behavior that exemplify educational concepts, and they are used to help teachers learn to analyze and classify behavior. The first year 11 protocol project directors were selected across the Nation to receive training in the development and use of protocol materials for teacher training. The number of protocol projects funded annually varied from 11 to 17. During the 5 years the program was funded (July 1970 to June 1975), approximately 140 packages of empirically based materials were produced under specified criteria, field tested, and disseminated.

PART TWO

Pedagogical Knowledge

- How fares pedagogical knowledge? Is what there is of it good? Is there plenty of it such as it is?
- What is pedagogical knowledge? What are its types, how does it differ from skill, and how can it be used in pedagogical education?
- Academic pedagogical knowledge. Is it theoretical? For what can it be used?
- What is teaching and how can it be analyzed for purposes of training?
- The need to assemble and organize generic clinical knowledge for skill development and a way to do it.
- Content-specific knowledge for skill development in relation to domains of teaching.

Chapter 6

Attitudes Toward Pedagogical Knowledge

Pedagogical practice has made significant progress in this century largely because of the rise and growth of research. Despite this fact negative attitudes toward pedagogical knowledge are widespread. As we reconsider pedagogical education in the broad scope we are immediately confronted by the claim that there is no adequate knowledge base for such a program. Examination of this alleged poverty is the subject of this chapter.

Sources of Pedagogical Knowledge

Pedagogical knowledge is derived from two sources: research and clinical experience. Research, as the source of pedagogical knowledge, is just over 75 years old if the work of Joseph M. Rice is taken as the beginning. During this time an enormous amount of research has been published. Monroe estimated in 1937 that some 50,000 studies had been made.[1] The number of studies since that time has probably tripled so that today we may assume that approximately 150,000 studies have been published.

If we use as a criterion of worth that a study is referred to 10 years after its publication, we estimate that approximately 10 percent of pedagogical research persists through any given decade. The survival rate over a period of 75 years would be considerably less, perhaps less than 3 percent. Even then the residue of important studies would be significant.

Not all of these studies have been in pedagogy per se. Many have dealt with problems in such areas as administration and supervision, test development, retardation and dropout rates, teacher tenure and salaries, social class origins of teachers, social class and student achievement and equality of treatment. But teaching has had the benefit of a large number of studies. Research on teaching has focused on at least five areas: a) school and classroom environment—buildings and facilities, class size, social and emotional climate; b) characteristics of teachers—educational level, college grades, intelligence, personality; c) generic teaching behavior—questioning, reinforcing, planning, managing student disruption, grouping, and managing materials and instruction; d) teaching behavior as conditioned by subjects of instruction—reading, science, mathematics, and so on; e) exceptionality and how to diagnose and treat it.

Pedagogical knowledge is also derived from clinical experience. The individual case is observed, analyzed, and a decision made as to what to do to help the individual. The teacher then tries out his or her hunch and if it works, the hunch is used again in similar circumstances. The same procedure applies to a group. If the group as a whole is having difficulties that appear to be similar, the teacher may observe the group and decide whether or not a particular form of help should be given. If it works, the teacher may use the procedure again.

In the early stages of the development of any helping profession, most of the knowledge is derived from the experience of the practitioners. This has been true in all professions—agriculture, medicine, nursing, law, and others. The history of medicine, for example, is replete with modes of diagnosing and treating illness, some of which have withstood the test of time.

Teaching is no exception. Over a long period of time teachers learned from observation of individual cases and groups that certain ways of behaving were more effective than others. Somewhere in the past of pedagogical practices, so far back that their origins have been lost, teachers learned that it was more effective to begin with concrete rather than abstract objects, to begin with the simple rather than the complex, and that rewards and the fear of punishment could be inducements to learning. Thus over the centuries what is now referred to as the wisdom of the profession or craft knowledge gradually emerged and continues to grow as teachers learn new things from their experience.

Craft knowledge consists of distillations from decades, if not centuries, of experience passed on from teacher to teacher through conversation and the printed page. An example of such knowledge, passed on to one of the authors by an older teacher, concerns the way to approach an irate student or parent. Induce the person to sit down with you, the teacher said, for in that posture anger tends to diminish and the person becomes more reasonable. Such knowledge consists of what teachers are aware of and (from experience) know will work. Unfortunately it has not been assembled and organized.

As a profession matures and its research base becomes more and more highly developed, more and more knowledge tends to come from researchers and less from practitioners. This is just as true for pedagogy as it is for other empirical professions. Today, the primary source of knowledge comes from researchers who are studying the problems of teaching in the various disciplines and also in the more general problems of student management and generic teaching operations. This is not to say that knowledge no longer comes from practitioners, but rather that the proportion of knowledge contributed by the practitioner today is relatively small compared to that contributed by researchers.

Another source of pedagogical knowledge is the clinical experience of counselors. Much has been learned from counseling experience about how to listen, how to recognize one's own reactions, how to understand the other person, and how to respond effectively. Out of this experience can be formulated a few rules of communication. For example, as a general rule, it is more conducive to smooth personal relationships in the classroom to answer a student's request to do something, not at the moment appropriate, by a qualified "yes" than by a "no." A student says, "May I show John how to work this puzzle?" If the time and conditions are not appropriate, it would likely be more effective for the teacher to say, "Yes, as soon as we finish our work" rather than "No."

Criticisms of Pedagogical Knowledge

Despite the advances of research, especially in the last 3 decades, some practitioners, pedagogical educators, and researchers are skeptical of pedagogical knowledge, questioning it on various counts. Attitudes toward the subject matter of pedagogy may be expressed in the following ways:

- —The knowledge is not dependable because research methodology is flawed.
- —There are no general empirical principles and no cause-effect relationships.
- —Empirical principles of teaching behavior are not useful because of the extreme variation of circumstances in which they must be applied.
- —Most of our knowledge consists of the effect of single variables which account for minuscule increments of learning.

Are Research Findings Dependable?

From time to time, some researchers have become skeptical of their work. Perhaps one of the earliest skeptics was Stephens, who published his critical review of educational research some 50 years ago under the title *The Influence of the School on the Individual.*[2] This review covered almost every aspect of pedagogical research—methods, class size, teacher behavior, and so on—and concluded that the primary, if not the sole, variables that made any difference in student achievement were reward and punishment. He returned to this thesis about 2 decades later and reached about the same conclusion from an analysis of research studies on methods, team teaching, programmed instruction, and a host of other variables.[3]

Recently a number of voices have been added to that of Stephens. After reviewing a number of critiques of educational research, Doyle concluded that there are few consistent results from studies of teacher variables and student outcomes.[4] Similar claims have been made by Shavelson and Dempsey.[5]

In addition to these claims, it is charged that process-product studies are flawed. A recent claim of this kind is that of Heath and Nielson, who criticized teacher effectiveness studies for failing to assign pupils randomly to treatments and for failing to show that the assumptions of various statistical operations were satisfied.[6]

Gage has recently reviewed the technical criticisms of research and the work of those who have defended research against its critics.[7] He calls attention to a study by Glass who compared poorly designed and well-designed studies with respect to results. Gage then goes on to say that "Glass's own

impression is that the difference in results between well-designed and poorly designed experiments is 'so small that to integrate research results by eliminating the poorly done studies is to discard a vast amount of important data.' " Gage also points to others who have made similar studies and reached the same conclusion. He concludes from his review of the pro and con critics, and of the research itself, that "we do have some relationships between teacher behavior and pupil achievement and attitudes on which a scientific basis for the art of teaching may be erected."[8]

After making one of the most, if not the most, rigorous reviews of process-product research on teacher effectiveness to be found in pedagogical literature, Medley gave his own interpretation of what we know from this research, admonished us against interpreting the findings to suit our own ends, and then warned against the doctrine of waiting for definitive results before doing anything:

> This is a strategy that appeals to some because it sounds very logical. The argument seems to be that if you don't do anything, you can't do any harm. Since we do not yet have a full and complete understanding of the dynamics of effective teaching, we are expected to ignore the imperfect knowledge that we do possess and do nothing that requires such knowledge.
>
> How fortunate it is for the human race that at least some of our ancestors did not subscribe to this position. If Columbus had waited until he had a complete and accurate map of the world before setting sail, his little fleet would still be sitting in Genoa.
>
> Very few decisions worth making can be put off until there is adequate information to base them on. In medicine—and poker, most actions must be taken, most decisions made, on insufficient data. Patients die, and money is lost, because action is taken when data are inadequate—but more patients and more money would be lost if no action were taken at all.
>
> So too, educators must make decisions everyday, regardless of the availability of hard evidence on which to base them. With this need in mind, we have proceeded.
>
> We believe that after reading this report and studying the findings presented, the reader will agree that no serious student of teaching can afford to be ignorant of the findings produced by research in teacher effectiveness.[9]

We subscribe to this view. Throughout the next five chapters we not only have discussed the forms of this knowledge and its utility in pedagogical education but also have emphasized the need to assemble what we know from research, process-product studies as well as other types, and how to relate it to program development, policymaking, and pedagogical training.

Are There Empirical Principles?

Those who hold that the knowledge base of pedagogical education is inadequate, if not entirely lacking, offer as evidence of their claim that no principles of teaching have been empirically confirmed. If it is meant that there are no teacher behaviors uniformly followed by specified student behaviors or achievement under the same conditions, much can be said for the claim. Neither the school nor the classroom is a closed system. Outside factors influence the classroom, and these factors apparently cannot be entirely controlled. Prediction of the state of the system at time t^1 from the state of the system at t is unlikely. Hence, it is risky to speak of empirical laws, in the classic sense, as pedagogical content.

Another claim that the knowledge base of pedagogical education is insufficient rests on the belief that causal connections between teacher behavior and student learning have not been established. Some authorities hold that only when we have causal knowledge can an optimum program of pedagogical education be developed. Waiving the question of what is meant by causation, all can agree that knowledge of causes is advantageous. With such knowledge, it is possible to contrive ways to remove the cause and thus to prevent unwanted outcomes. It also facilitates the production of desired results, for if we know the causal conditions it is possible to devise treatments for dealing with them.

Nevertheless, a profession does not depend upon causal knowledge. It is well-known that means-ends relationships are established in many areas of endeavor without knowledge of causes. Striking instances are found in medicine and agriculture. Quinine, an effective treatment of malaria, was used by American Indians and later by physicians for centuries before it was known that malaria was caused by sporozoan parasites or why quinine cured

the disease. Fish were used by the Indians as fertilizer centuries before the chemistry of plant food was known. There are many means-ends principles in pedagogy. For example, data show a resulting high rate of student engagement and achievement when teachers spend a high percentage of instructional time in giving corrective feedback, although why corrective feedback produces these results is unknown.

Neither the lack of uniform relationships between teacher behavior and achievement variables nor ignorance of causes can be taken as evidence that pedagogical education is devoid of scientific knowledge. Statistically significant correlations between variables of teacher behavior and those of student behavior or achievement are well established. In practical terms, these correlations yield prescriptions for use in practical settings. For example, if a teacher plies low achieving students with low order questions, provides corrective feedback, assigns work, and holds the students accountable, they will do well on a standard test in the subject. This principle yields a prescription: ask low order questions, give frequent feedback, make assignments, and hold students accountable. However, as in the case of law-like knowledge in all professions, certain conditions not usually stated must be present. The students must be able to read the text; there must be order in the classroom; and there must be sufficient time as well as other conditions.

Statements of less than one-to-one correspondence between sets of data are prevalent in all empirical professions such as agriculture and veterinary medicine. Nevertheless, law-like propositions in these fields are used to increase the yield of agricultural products and to safeguard animal life.

Professional practice requires only probable, not exact, knowledge in order to be successful. That knowledge is probable and that there is often more than one means to an end are reasons why judgment is important to successful practice in any profession. For example, the question of whether to ignore or give attention to a particular classroom disruption, or what to do if attention is to be given, typically calls for professional judgment. Suppose a disruption occurs. The teacher must make a quick diagnosis. Which student did it? Are other students involved? Is that student normally orderly or one who often seeks attention? Is the student one who tends toward violence?

The teacher is often in the position of having less than sufficient facts. Yet immediate judgment cannot be avoided. In such a situation the teacher will assess the circumstances and call upon prior experience and knowledge of reinforcement. Should the incident be ignored? Should it be stopped? Should the student be counseled by the teacher at a later time? There is no ready made formula by which to answer these questions. The teacher must judge among optional means of restoring order and seeking the prevention of future occurrences.

To sum up, the position that pedagogical research is sterile because it has produced no causal relations and no empirical laws is without foundation, for neither of these is a necessary condition of effective professional practice. What is required is not certainty, but correlational knowledge that is reasonably dependable.

Are Variables of Effective Teaching Behavior Useful?

The reduction of principles to prescriptions is looked upon with skepticism by some and with outright disapproval by others. No one has stated this position more clearly than Fenstermacher in the following passage:

> Rules may serve as the means for bridging educational research and practice. This happens when the results of research are converted to imperatives for teachers to follow. For example, among the findings of phase III of the BTES is that "more substantive interaction between the student and an instructor is associated with higher percentages of student engagement.". . . Loosely restated in the large context of the BTES study, this finding stipulates that a student is more likely to show a gain in achievement of a basic skill if the teacher maintains a reasonably high level of academically relevant interaction with that student. One way for a person engaged in bridging to employ this finding is as a rule governing teacher practice. A principal, for example, might ask the school staff to devote not less than half the time available in a given instructional period to teacher led, small group instruction. . . .
>
> Bridging with rules brings little if any advantage to practitioners. Some of the reasons why this is so must await further development

of the argument. A few of the reasons are accessible now. In general, rules are based exclusively on the findings of research, and not on the research program considered as a whole. There are several faults with this exclusive reliance on findings. The first is the great potential for misinterpretation of the findings. Research findings read out of the context of the entire research effort may be very misleading. Though researchers make careful attempts to delimit their findings, there is simply no practical way to attach all the exclusions, exceptions, and "other things being equal," to each and every finding. Second, the findings themselves may be unworthy of great confidence, as would be the case if they were not highly confirmed by the data, or if they were artifacts of the way the data were analyzed, or if they were based on an inadequate or unrepresentative sample. Third, when findings are converted to rules the effect is to generalize the findings to everyone subject to the rule and the consequences of compliance to it. In many instances, the research simply will not support such pervasive and uncritical generalizations of findings. Finally the rule may be an invalid interpretation of the findings, as would occur if it were shown, in the example above, that teacher led, small group instruction did not enhance a student's engagement in a task.

Perhaps the most debilitating aspect of bridging with rules is its effect on the practitioner's perception of his or her stature and competence. Persons expected to change their behavior on the basis of rules imposed by others are denied a portion of their freedom to think and act independently. Certainly we must all tolerate a degree of imposition in order to fare well in life. However, if practitioners are to have the opportunity to grow as professionals, other means of bridging research with practice may be far more productive of professionalism than the use of rules.[10]

This passage admonishes us on five counts:

- The practitioner may misinterpret the findings.
- The research itself may be faulty.
- The rule may be generalized to cover everyone regardless of the limitations of the research.
- The rule may be an improper interpretation of the findings.
- Rules are an imposition upon teachers and thus tend to rob them of their status as professionals.

These are proper warnings and disregard of them risks embarrassment and failure. But they do not indicate that the reduction of principles to prescriptions is to be avoided.

Granted that the findings of research are to be used within strict limitations, it is not the responsibility of the practitioner to translate findings into useful knowledge nor is it an infringement upon them to provide rules and the conditions of their use. It would be difficult to make a more grievous mistake than to insist that practitioners apply the findings of research. They have neither the time nor the preparation to ferret out the significant studies, to evaluate them technically, or to identify and interpret the limiting conditions that methodology imposes upon the use of research findings to say nothing of new skills required to apply the findings.

This is readily admitted by those who place the responsibility for using research upon the practitioner. But they hasten to add that this deficiency can be remedied by work in research methods where practitioners can learn not only the procedures and techniques of research but also how to interpret and apply research findings. However, more than a course or two in statistics and research methods is required to qualify as a consumer of research findings, as anyone who has undergone such experience can readily attest.

It is a fundamental error to assume that practitioners—administrators, teachers, supervisors, and so on—are the avenue through which the findings and conclusions of research are to enter directly into practice. No other profession makes such an assumption. And, indeed, even in certain areas of the pedagogical profession this assumption is not entertained. The research on reading, for example, is translated into various types of teaching materials, not by practitioners but by researchers themselves or as advisors to publishers and other producers of instructional materials.

In all other professions, those who educate the practitioner build the findings of research into the programs of professional training. They do not expect the practitioners—physicians, farmers, veterinarians, foresters, or whoever—to use research save

as it is translated into practical materials, procedures, and techniques. If research findings and conclusions are to make any difference in practice, they will do so when incorporated into the professional curriculum for all school personnel.

The function of a pedagogical faculty is not only to conduct research but also to translate research findings and conclusions into programs of professional preparation. If pedagogical faculties do not make use of the knowledge resulting from research to develop a conceptual system for the practitioner and skill in performance in accordance with empirical propositions of a condition-consequence type, they should not expect the practitioner to make use of research findings either.

The failure of research to make as great an impact upon practice as it might have done is not to be attributed so much to lack of research knowledge as the fact that pedagogical faculties largely ignore research findings as they train school personnel, especially teachers and administrators. When they have made use of research, they have done so in courses taught after the fashion of liberal arts courses which are largely verbal, inducing no operational understanding and no ability to perform in accordance with research knowledge.

To invade the autonomy of teachers is to treat them as less than craftsmen, for not even a craftsman will suffer the effrontery of someone telling him how to do his or her work. The charge that prescriptions reduce the professional status of a teacher would be serious if it were true. It is not the prescription but the administrative behavior that robs the teacher of his or her autonomy.

If neither teachers nor administrators are to evaluate and interpret research in order to bridge the gap between research and practice, who is to do it? The answer, as stated above, is that pedagogical faculties who educate teachers and train them for professional service are responsible for evaluating and interpreting research, and for specifying the exceptions, exclusions, and alternatives for special cases. Principles should be included in programs of training, in textbooks, and in handbooks for practitioners and all the qualifications stated therein. That little of this is now done by pedagogical faculties only indicates the quality of pedagogical education.

Most of us are unmindful of the extent to which our behavior is regulated by prescriptions. For example, a package of lawn pesticide, recommended for use against chinch bugs, crickets, sod worms and other pests, carries these instructions on the back. "Distribute at 6½ setting on spreader. Don't use when grass is wet; don't mow for 24 hours after application; don't use any other control product for a week after application." No research report is given to support the prescription or the exclusions, although research on these matters is in all probability available. Would a caretaker feel that his prerogatives have been abridged? Of course not, for his responsibility is to select and use the pesticide when he sees evidence of its need.

But, some will say, a caretaker is not a professional. Then consider the following passage from a physician's manual:

> 1. Treatment of the acute attack: The drug of choice in all types of malaria except drug-resistant falciparum malaria is chloroquine. The dose is 1 Gm of chloroquine phosphate (600 mg base) orally, followed by 500 mg (300 mg base) in 6 h, and then 500 mg (300 mg base)/day for 2 days. The total dose in 2.5 Gm (1.5 Gm base). Patients who are comatose or vomiting may be given chloroquine hydrochloride 250 to 375 mg (200 to 300 mg base) IM q 6 h. Oral therapy with chloroquine phosphate should be resumed as soon as possible.
>
> Chloroquine-resistant strains of P. falciparum (any case contracted in Central or South America or the Far East may be resistant) should be treated with quinine, pyrimethamine, and a sulfonamide, all given concurrently. Quinine sulfate 600 mg t.i.d. is given orally for 10 days. If oral therapy is precluded, 600 mg of quinine dihydrochloride may be diluted in 300 ml saline or glucose and given IV over 30 min. The dose may be repeated q 8 h, but oral therapy should be restarted as soon as possible. In cases with renal failure, the dose is limited to 600 mg once/day. Quinine may cause tinnitus and, occasionally, drug fever or allergic purpura. Pyrimethamine 25 mg b.i.d. is given orally for 2 days. It is a folate antagonist and may cause or accentuate anemia. Sulfadiazine 500 mg orally q.i.d. is given for 5 days.[11]

The prescription, for acute attacks of malaria, is that chloroquine should be given in specified amounts and time intervals. There are at least seven exceptions, side effects, and alternative treatments suggested. There is no reason to suppose, however, that a physician feels that his professional

status is reduced when he turns to these practical considerations derived from research.

The view that prescriptions for classroom practice, derived from statistical generalizations, is necessarily misleading and that the use of them belittles teachers as professionals fails to take into account the nature of principles and how they are used in professional training and practice. An effective program of pedagogical education would emphasize principles and their grounding in research together with exceptions, exclusions, and alternatives. It would also emphasize the development of skills indicated by the rules and how to identify those conditions in the classroom to which exceptions and alternatives apply.

Recent research is beginning to provide information about the effects of teacher behavior upon different categories of students. For example, evidence is increasing that the procedures of teaching effective with low socioeconomic status students are different from those that are effective with students of high socioeconomic status. There is every reason to believe that as research advances we shall learn more and more about how to treat exceptional cases within a framework of principles pertaining to the general group.

Is the Effect of the Single Variable Worthwhile?

The view that pedagogical research is fragmentary and that its findings do not add up to a substantial body of knowledge is not unrelated to the criticism that the model of the single variable does not fit pedagogical phenomena. If one variable after another is studied and no way of relating them in a pattern of behavior is known, naturally the findings of research will make up a hodgepodge of unrelated propositions.

It has been shown time and again that a single variable counts for little in the achievement gains of students. This fact has been advanced as a fundamental criticism of pedagogical knowledge. But the criticism is not as severe as it appears to be for two reasons. First, while a single variable may contribute little to the total achievement gains, it may be of tremendous value to the teacher in helping a student over the hump at a particular point in the teaching process. For example, corrective feedback to a student who is unable alone to solve a particular type of problem in arithmetic may count for little in the total picture, but it can make a lot of difference to the student and the teacher at the time. Second, in the actual operations of teaching, one variable alone is seldom, if ever, used in isolation from other skills, but usually in a pattern of teaching behavior. Its influence is weighted along with the effects of the total pattern.

Yet it is important to be able to identify a particular variable at a given time and to know something of its effects. Unless teaching behavior is analyzed into its elements, it would be almost impossible to identify the points where a trainee needs further practice as well as conceptual enlightenment, for teaching behavior taken as a whole is a complex of variables and the pedagogical professor who cannot analyze it as it occurs in the classroom is not likely to be successful in training the prospective teacher.

Alternatives to Research Knowledge

It is right and proper that researchers be critical of their methods and that they weigh the dependability of knowledge by the stringency of the evidence. But their zeal for rigor should not be taken as evidence that the results of research count for naught. Of course, knowledge derived from research is to be taken cautiously, but not less so than craft knowledge. And either one is preferable, even when the evidence favoring them is fragile, to fictions and nostrums.

Knowledge derived from scientific study of pedagogy has been held in ill repute almost from the beginning. When Rice reported his investigations of the effects of varying time allotments on spelling achievement to the association of superintendents in Indianapolis in 1897, he was met by a storm of criticism. The purpose of spelling, so the superintendents proclaimed, was to discipline the mind. Rice "erroneously" assumed that the objective was to learn to spell.

In this century there has been an increasing tendency among pedagogical leaders, school administrators, and practitioners to prefer fiction and nostrums to knowledge. Witness the rise and fall of the project method, activity movement, child centered school, core curriculum, structure of the disciplines, new math, process approach in science and social studies, and open education, to mention a few of the more conspicuous examples. And now faintly appearing on the horizon is the futurist

movement, heralding a society in which schools will disappear.

This penchant for fictions and wholesale remedies is not restricted to pedagogy. Opium and calomel were considered cure-alls by physicians in the last century. Bloodletting was endorsed as a treatment of pneumonia by William Osler, a renowned physician and one of the founders of the Johns Hopkins medical school, as late as 1893.[12] Heroic medicine, the use of supposed powerful treatments, was not infrequent. The practice is illustrated by the treatment of a parturient patient in 1887. According to the physician's report to the local medical society, he administered the following heroic treatment during a 24-hour period: "cupped and bled the patient of 80 ounces of blood, dosed her with castor oil, gave a purgative enema, and vomited her with tartar emetic every two hours."[13] The physician reported that as an outcome of his treatment the patient was restored to health in about 4 weeks. Practicing physicians and surgeons until recently fought almost every advancement in scientific medicine—the germ theory of disease, the use of antiseptics and anesthetics, to mention only some of the major battlegrounds. It took 25 years for farmers to accept hybrid seed corn. And courts of justice had to rid themselves of the notion of witches and racial superiority along with many other fictions. As a profession becomes aware of and respects its knowledge and techniques, those who espouse fictions, wholesale remedies, and utopian scenarios lose their audience.

Summary

The knowledge base of pedagogy is increasing and will continue to do so at an accelerating rate if research is adequately supported by State, Federal, and private agencies. While research methods and designs will continue to evoke controversy as they are perfected, a residue of useful information will fall out as they are applied to problems in different contexts.

But it is one thing to do research and quite another thing to exploit research findings in the interest of developing ever more effective programs of professional preparation. What is now required is an about face for faculties of pedagogy. They are accustomed to thinking in terms of what can be done to improve the schools. And professors of pedagogy have been all too ready to have teachers do thus and so, or administrators to introduce this and that remedy. But the time has come for improvements to begin at home, for faculties of pedagogy to look at their own programs in the light of research knowledge and to create a genuine program of professional education. We can no longer enjoy the luxury of trying to change everything but our own programs.

Chapter 6

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Chapter 7

Pedagogical Knowledge: Its Forms and Uses

Pedagogical knowledge can be discussed from various standpoints: how it is come by, its kinds, and its relations to action. In the preceding chapter we briefly discussed the sources and status of pedagogical knowledge. In this chapter we shall examine the various forms of knowledge, how academic and clinical knowledge differ, and the relation of clinical knowledge to action.

Forms of Pedagogical Knowledge

There are four different forms of pedagogical knowledge, as follows:

- Definition: frustration is an emotional tension set up by the blocking of a need, desire, or attempted action.
- Principle: if a student is prevented from doing something in which he or she is deeply interested, he or she will likely exhibit aggressive or primitive behavior.
- Value: frustration is sometimes beneficial.
- Fact: Mary, a second grader, can recognize less than a third of the Dolch basic sight vocabulary.

Definitional Knowledge

The prime elements of pedagogical content are defined and undefined terms. Undefined terms are those whose meanings we take for granted. They are typically used in defining crucial terms. Starting with the word "frustration" we can get at its meaning by reference to words whose meanings are derived from other words. The expression "an emotional tension set up by the blocking of a need, desire, or attempted action" may be taken as defining "frustration." Now consider the term "tension" that is undefined in the expression. To define it we may say simply that tension is a state of psychological readiness to act. We stop there, for "state" is ordinarily not defined in pedagogical discourse. We know its meaning with enough accuracy to suit our purpose without further ado.

Defined terms are our stock in trade. The development and use of professional knowledge in any field depends upon the development of a body of standard definitions. Pedagogy is no exception. If fundamental terms such as "learning," "intelligence quotient," "feedback," and "objectives" are not used in the same sense, no serious professional discussion can be engaged in. Vague or ambiguous definitions indicate that our concepts are ill-formed and imprecise.

Professionals who have precise concepts, and use the same terms to designate them, can work together with a minimum of misunderstanding and with little friction as they try to reach agreements. But if their definitions are flawed, or if some of them insist upon using private language or meanings that belong to some special orientation, their efforts to carry on productive discourse will be hampered.

A definition can be viewed as a rule for using a word or expression. Consider the definition of "frustration." First of all it is an equation, so to speak. The term "frustration" is equal to (has the same referent as) the expression "emotional tension set up by the blocking of a need, desire, or attempted action." The rule is that wherever "frustration" occurs we can substitute the equivalent expression and vice versa without loss of meaning.

Substitution of one part of the definition for another is clear enough, but what does the definition tell us? For one thing, it tells us that frustration belongs to a class of things called emotional tension. Perhaps the class includes more than one kind of emotional tension. If so, the definition tells us, for another thing, how frustration differs from other sorts of emotional tensions; it is the kind of tension that results from blocking of a need, desire,

or action rather than one that results, for instance, from anxiety. We now know in so many words what frustration means; we can use the term in a dialogue, in discourse, or in reading.

Suppose we are asked to tell in concrete terms how to identify a frustrated person. What can we say? From our knowledge of the definition so far we can say very little or nothing. To identify a case of frustration is to know the observable attributes of an emotionally tense person. We can all agree that among these attributes are use of vile language, anger, temper tantrums, crying, aggressiveness, and withdrawal. These are manifested in observable behavior which most individuals can identify from their previous experience. Still we do not know whether these observable attributes indicate frustration, for individuals can cry, use vile language, and so on, because of other forms of emotional upset such as grief or anguish. However, if we know that the person was unable to attain a goal when he or she has been repeatedly successful before, as failure to score in a game, we can then say that this is a case of frustration. From this analysis it can be seen that in an empirical field such as pedagogy, the referent—some set of objects, events, or behaviors—of a technical term must be identified in reality. The generalized idea of the set, expressed as a definition, is a concept. In short a definition is a concept verbally rendered.

A major flaw of pedagogical thinking is our failure to insist on precise and rigorous definitions. Pedagogical educators and teachers typically use language loosely and often spurn standard terms for vague and catchy expressions. The opposite is found in other professions where thinking is controlled by standard meanings even when the terms are commonsense words.

Law is a case in point. It depends upon precise use of language. Offenses are defined in terms of such attributes as motives and types of behavior. Some are defined precisely. For example, assault is defined so strictly that an attorney knows whether a given act is a case of assault or assault and battery. Some definitions are open ended; while they are rigorous, they are incomplete. Consider the term "murder." The act of killing a person is not necessarily murder. The task of a jury, among other things, is to decide whether or not murder has been committed in a given case of killing. The term "murder" designates a residual category. A case of killing may be judged as murder if it is not known that the defendant was insane, acted in self-defense, killed accidentally, and so on, and if a motive for the act is established. The meaning of the term is made clear for the most part by the exceptions.

How the effectiveness of a professional depends in large part upon the mastery of terms is also illustrated in medicine. Diagnosis in medicine, as in any field, proceeds by definitions. Is X's illness a case of malaria? If it is, X will suffer from fever, chills, a swollen tongue as evidenced by the print of teeth on its sides, and other observable symptoms, if we go by the medical knowledge of the last century. While the diagnosis is made by blood tests today, the diagnosis still rests upon a definition in terms of the attributes specified for the test.

The mode of diagnosis in pedagogy such as telling whether a child is frustrated, or lacks the learning prerequisites to perform a task, or does not comprehend what is read is made by observation of moment-to-moment behavior in the classroom and by tests, as in reading and mathematics.

Some critics attribute the lack of discipline in the use of language in pedagogical discourse to the fact that most information about teaching, derived from practical experience, is couched in the vulgar language. Whatever the truth of that claim, the body of precise terms grows as pedagogical research advances. As research terminology is built into pedagogical education and the language consequently becomes more precise, exact use of language will increase. This consummation will be significant, for the applicability of pedagogical principles depends upon the rigor of definitions.

It hardly need be said that to think of definitions as being either true or false is unprofitable. Definitions are either fruitful or unfruitful, depending upon the inferences they yield. If frustration is defined by reference to distinctions among emotional tensions rather than to the presence of some sort of evil spirit, it is not because the first is true and the other false. The first is preferable, because it opens up more effective ways of helping students.

Uses of Definitions

Turning now to the uses of definitions, there are three to which we wish to give special attention. First, since a definition is the verbal counterpart of a concept, the definition can be used to test the clarity of the concept and the degree to which it is the same from one individual to another. To agree

about the substance of a definition is to signify that the concept is the same for all parties.

Second, commonly defined concepts enable members of the profession to know what they are working with or talking about. They guide observations; as someone has said, concepts are screens through which the world is filtered as it enters our senses. We see with our concepts as well as with our eyes, for what we observe is dependent upon the mental content we bring with us. If a physician, a psychologist, a minister, and a teacher observe the same group of children, they will report quite different information. Each will see the children from his or her concepts about children and their behavior. This is why classroom observation by trainees undisciplined in concepts is often ineffective and why controlled observation as in protocol[1] materials helps trainees to become disciplined observers. It cannot be overemphasized that one of the primary characteristics of a highly trained professional in pedagogy, as in all professions, is the ability to observe dispassionately in accordance with commonly held sets of technical terms.

It must be pointed out, however, that the relationship between concepts and observations is not a one-way affair. At a fundamental level of research and analysis, observational discriminations can impinge upon our concepts, causing us to reconstruct them and sometimes even our most fundamental notions of the grounds of our endeavor. Thus on a fundamental plane of analysis and observation, a plane on which practitioners seldom need to operate, the certainty of our concepts at any time is a delusion, for they are hedged around with unexplored territory. However, that is no reason for believing, as some skeptics do, that we should define terms as we please and that efforts to maintain a common professional language are misspent.

Unfortunately, pedagogical concepts are typically taught almost exclusively at the verbal level. Their meaning for the student is derived from the context of discourse and from the student's ordinary experience. The referents of terms are seldom identified, and when they are the identification is likely to be made by verbal rather than concrete examples. If a student asks for an instance of frustration, anger over a teacher's failure to return examination papers on time may be cited. While this verbal instance may be clear, it lacks the reality of a classroom incident. How many practitioners, or even professors of pedagogy, can identify in the classroom instances of feedback, reinforcement, motivating behavior, sex discrimination, anxiety, advance organizers, or chaining to mention only a sprinkling of concepts? And how many of their colleagues would agree with their identifications? If 5 years experience of some 17 professors in developing protocols to exemplify concepts by actual behavior can be taken as evidence, the number will approach zero. Perhaps the failure of teachers to use technical terminology, as observed by Jackson,[2] is attributable to the disregard for precise definitions of terms and their referents, a deficiency that protocol materials were designed to correct.

In the third place, definitions are useful in the application of principles to teaching. We learn from research that children who are persistently on-task are more likely to learn than those who are intermittently so. But this principle will be of little use unless we can tell from observation whether students are on-task or not. What does it mean to be on-task? If the concept of on-task is taught so that we can identify on-task behavior in the classroom, we can apply the principle. Otherwise, the principle is of little use.

Principles

A principle is a statement of relationships among variables. A variable is a measure of concept and when the concept is expressed verbally it becomes a definition. The relationship between sets of variables in a principle is that of condition-consequence. For example, if teachers avoid negative affect when working with students whose socioeconomic status is low, student gain is increased. The condition is that the teacher avoid negative affect. The consequence of this condition is that student gain is increased. Now, the condition is made up of concepts—avoid, negative affect, and low socioeconomic status. The consequence is composed of two concepts—student gain and increase. Both sets are expressed in research as variables.

Now, a principle is not a prescription. It is simply a statement of a relationship among two sets of variables. Some principles do yield prescriptions while others do not. The principle just cited has a high prescriptive potential. The prescription is—avoid negative affects when teaching low socioeconomic status pupils. A prescription is simply a statement of what can be done in a given case. But

whether to use this or that prescription is a matter of professional judgment.

Some principles yield no prescriptions and others have low prescriptive potential. Consider the following principle: If groups have established norms, it is extremely difficult for a new leader, however capable, to shift the group's activities.[3] It is not easy to read a prescription from this principle. Probably the best that one can do is to say that if a leader wants to continue the leadership role, he or she should not try hard to change the group's activities. But there is no prescriptive potential in this principle for one who wishes to change the activities of the group.

Principles are approximations, and their exactness can be increased by analysis of variables. Just for illustration let us consider first a principle from another field. We take this apparent detour because the case is simple, and, because it is in physical science, it will enable us to escape the engrossing attitudes about the complexities of human behavior. After looking at this case we can turn to a pedagogical parallel. Consider the statement: Iron rusts when exposed to the elements. This principle is known even to common sense. What we refer to colloquially as iron usually is in fact steel. Now steel consists of iron and carbon, the proportions determining the properties of steel. Steel can also be mixed with manganese, tungsten, chromium, and nickel to produce properties such as hardness, resistance to rust, stains, and so on. So when we speak of steel it may appear that we are talking about a homogeneous substance when in fact it is an alloy.

Now, suppose we look at the pedagogical principle: If a teacher makes clear assignments, makes sure that the students understand the assignments and how they are to be done, gives corrective feedback and reinforcement, assigns homework, conducts reviews, and holds students responsible, the students will do well on tests. We note that a number of variables appear in the conditional part of the statement: teacher, assignment, student, and so forth. It goes without saying that teachers, like steel, are not all of a kind. Neither are the students. Some teachers are secure and some are not, some are better educated than others, some more unsure, some tend to individualize and some do not, and so on. Students also differ. Some are low achievers, some dependent, some high achievers, some independent, and so on.

In any study of teaching based on a random sample of undifferentiated students and teachers all types of both students and teachers will be included. Suppose an experiment is conducted with such a sample and that the subject matter of instruction as well as the pattern of instruction are held constant according to the principle above. It will turn out that some students do well on tests, some poorly, and others somewhere between. This result is comparable to the physical example. Some steel does not rust when exposed to moist air. Whether it does or not depends upon its composition. The principle that steel rusts when exposed to moist air must therefore be qualified. It all depends upon its composition. Some types of steel will rust, others will not. This same mode of analysis holds for pedagogical knowledge. When the type of teacher is known and is matched with the appropriate type of student, as determined by analysis and experimentation, the number of students who succeed on tests is likely to increase.[4]

Research in pedagogy no less than in other fields advances our knowledge by successive approximations. Our knowledge is built step by step, no one of which takes us very far, but taken in tandem they lead on to more and more knowledge.

To sum up, if the concepts composing the conditional part of a principle are spelled out in behavioral terms, we can tell from our knowledge of a particular case whether the principle applies. If the concepts remain undefined, or if they are not spelled out in pedagogical settings, the principle will be of little or no use to teachers. Neglect of this aspect of both correlational and experimental knowledge by researchers as well as by instructors accounts for much negative reaction to pedagogical research.

Value Knowledge

Pedagogical discourse constantly resorts to value claims. We express value judgments about teachers, administrators, students, practices, conduct, programs, and so on. Here are some examples:

- —Miss B is a good teacher.
- —John is a poor student.
- —Mrs. A is a good person but an ineffective group leader.
- —This test is unreliable.
- —This is a beautiful school building.

—We should involve students in planning what they are to do.

—We ought to abandon that sort of classroom control.

In these examples the value terms are "good," "poor," "ineffecive," "unreliable," and "beautiful." They are applied to a teacher, a student, a group leader, a test, and a building, and are commonly used, as in these examples, to rate persons, objects, and the like. To say that Ms. Baxter is a good teacher is to rate her—she is at the upper end of a scale from poor to good. The terms "ought" and "should" are indirectly value terms, for they are intended to move us to take certain actions which are deemed to be desirable, worthwhile, or beneficial.[5]

Values are a special kind of concept and are often confused with attitudes to which they are related. Values are ratings; attitudes are dispositions to be for, against, or neutral toward something.[6] If a teacher says "poor old John," she is expressing an attitude, and in no way valuing him. But if the teacher says, "John is a good principal," she is rating him—attributing value to him as a principal. As noted above value statements contain two kinds of expression: object terms and value terms. In the statement just given, "good" is the value term, and "John" designates the value object. The value object is that which is rated and the value term tells what the rating is.

Value questions are seldom analyzed in pedagogical education. This is attributable to the failure to distinguish values from attitudes and to the inability of instructors to analyze value language. To define a value term is to state the criteria for using the term. If one says that Ms. Baxter is a good teacher, the assertion tells us nothing about Ms. Baxter unless the criteria for using the term "good" in that context is given. "Good" is the most general term of commendation in the English language, as someone has said. It can be applied to almost any object—stones, animals, plants, persons, or what have you. But other than the fact that the object is commended, the bald term tells us nothing. Without the criteria for using "good" in a particular context, its meaning is indefinite. If anyone disagrees that Ms. Baxter is a good teacher, we can suggest that the criteria have not been given and that each party to the dispute is using its own criteria. But if the criteria are given and still there is disagreement, we can assume that either the criteria or the data about Ms. Baxter's teaching behavior are not acceptable to all parties.

From what has just been said, it should require only a bit more discussion to show that values are a special kind of concept. To say that Ms. Baxter is a good teacher is to say that she is a member of a set of teachers that the speaker calls "good." When the criteria of that set are given, the teaching behavior of Ms. Baxter, or of any other teacher, can be observed to decide whether the teacher is or is not a member of that set. Value designates a special type of concept because the value term evokes differing and often conflicting preferences. And efforts to allay these preferences in the interest of an optimum set of criteria is the unique problem of value analysis in the context of research and practice.

Some progress has been made toward standardizing the use of value terms. Yet value language in pedagogy is far from being an adequate tool. The criteria of some value terms are now relatively settled, others are becoming settled, and still others are openly controversial. The terms "validity" and "unreliability" were once controversial value terms. They were loaded with preferential connotations and without acceptable criteria for the use of either expression. But, in test development, criteria and procedures for applying them have now settled the use of these terms.

Effectiveness, as a value term, applied to teaching, is becoming technical in the same way. When academic learning—in reading, writing, arithmetic, science, and so on—is taken as the outcome of teaching, effectiveness can be defined in terms of student outcomes associated closely with teaching behaviors not only in one school but also across schools for all teachers exhibiting those behaviors. Teachers whose behavior is comparable are members of the set of effective teachers.

The catch is that some authorities claim that academic achievement is not the sole purpose of teaching and others that it is not even the primary purpose. They will consequently deny the foregoing criterion of effectiveness. These objections can be answered by showing that certain concomitant learnings—problem solving ability, positive attitudes of students toward themselves and the school, interest in further learning, and the like—are enhanced along with academic achievement. That these concomitants actually occur when teachers are effective is now apparent from recent research.[7]

Were the results of research to turn out otherwise, however, teacher effectiveness might then be

defined by reference to other types of outcomes. In that case, there would be a multiplicity of conceptions of effectiveness. If choices must then be made, and the profession cannot reconcile its divisions, some higher authority such as the State will intervene to say what the public supports its schools to do, or the State may allow alternative schools. In either case, the ultimate result will be the same, assuming that alternative schools are competitive, as Adam Smith proposed. From 2 centuries of competitive economic life it is clear that competition leads to standardization.

Perhaps it should be noted in passing that preoccupation of professionals with questions of value is indirectly proportional to their knowledge of means. This fact is borne out by the history of science in general as well as by the history of such professions as medicine and agriculture. A great deal of controversy about values ultimately boils down to questions of means, and as these questions become settled the value questions tend to evaporate. The weight of values is greater in anticipation than in a *fait accompli*. This is not to deny that there are genuine questions of value in all intellectual undertakings, nor is it to be interpreted to mean that those who raise value questions are simply throwing up smoke screens, although value questions have not infrequently served that purpose.

Factual Knowledge

The word "fact" is used in a number of ways.[8] It is used synonymously with the word "true." The statement "It is a fact that Thomas Jefferson died on July 4, 1826" means the same as "It is true that Thomas Jefferson died on July 4, 1826." We are not concerned with this usage as an element in pedagogical knowledge.

"Fact" is also used in the same sense as "datum." "John's score on the test is 85" or "Mary was on-task 20 minutes" are examples. Or again, it is used in an interpretive way. We say that John's score places him in the upper quartile of his class. But to place his score in the upper quartile is to interpret it. We have classified his score as a member of a set of scores and thereby added further meaning to it. We also use "fact" to cover statements of an invariable sequence or conjunction of characteristics. "All adolescents go through a period of strain and adjustment" is a statement that exemplifies this meaning. When "fact" is used in this sense, it designates an instantial generalization similar to the statement "All crows are black."

The importance of facts in pedagogy, as in other fields, is found partly in their use as evidence and partly as sheer information relevant to professional performance. For instance, to diagnose the learning problems of students is to note facts about the types of errors they make. And principles are warranted by the facts adduced to support them. Much of the content of special methods courses in reading and other subjects consists of information about the elements of various processes, the kinds of errors children make, and differences among children. These are important items of information and are nonetheless useful because they are facts.

Academic and Clinical Knowledge Distinguished

Pedagogical knowledge consists of two types: clinical and academic. Clinical knowledge is that which teachers use as they help students, either individually or in groups. It is the verbal counterpart of pedagogical behavior, and is expressed as definitions, principles, facts, and values. It is used as teachers give instruction in the performance of a skill such as giving feedback, asking contrary to fact questions, making diagnoses or other judgments.

Academic pedagogical knowledge consists of the definitions, principles, facts, and values that comprise the content of educational history, philosophy, sociology, psychology, and so on. It is used mainly in developing and justifying educational policies and programs. Clinical knowledge, on the other hand, is closely associated with classroom performance and with performance on other clinical tasks such as counseling.

Admittedly this distinction is not clear-cut. Pedagogical practices are often illuminated by flashes of insight from academic ideas, and experiences from actual performance often enrich abstract notions about learning and development as well as programs of instruction. But if the line is not too finely drawn, it roughly separates what is loosely, if not erroneously, referred to as theory and practice.

Academic and clinical knowledge are further distinguished in two ways: first, by the content of the forms of knowledge; and, second, by differences in prescriptive potential. Generally speaking, con-

cepts in clinical knowledge are teacher-behavior variables and student-behavior variables. In contrast, concepts in academic knowledge are social, economic, psychological, and institutional variables and variables having to do with their effects upon children and youth, teachers, and the school.

These differences in conceptual content are manifested in the following principles:

- Lower class boys who go to college are more likely than others to have parents who are dissatisfied with their own class position.
- If teachers structure lessons and give directions on task procedures, students experience high success rates with learning.

The first principle gives no information as to what to do, as far as the school is concerned, to increase the number of lower class boys at higher institutions. We can infer from the proposition that one way to increase the number of lower class boys in college would be to increase the number of parents who are dissatisfied with their social position. To this extent, the principle can be said to have a prescriptive potential, but its significance for action is feeble. Most principles in academic pedagogical knowledge either have a low potential, as in this case, or none at all. They describe a state of affairs, typically static, and its consequence. However, they can be very significant in the shaping of programs, policies, and decisions.

The second principle represents clinical pedagogical knowledge. It has a high prescriptive capacity. It tells us what a teacher is to do if the teacher wishes students to experience high success rates. Clinical principles are typically those whose prescriptive potential is high.

It can readily be seen from the foregoing analysis that the content of clinical principles differs markedly from the content of academic principles. It pertains to dynamic variables, variables that can be manipulated and controlled in order to help students achieve specifiable outcomes. It embraces both diagnosis and prescription and is involved, as will be seen in Chapters 10 and 11, in all domains of pedagogical training. The content of academic principles, on the other hand, typically consists of static variables such as social class, welfare level, peer group, and social mobility, which are least amenable to deliberate manipulation and control. Academic principles indicate relationships to be taken into account as clinical knowledge is used and as programs and policies are made.

While academic pedagogical knowledge is drawn in part from sociology and economics and from the psychology of human development, intelligence, and learning, it is worthy of note that pedagogical psychology is in a state of flux.[9] Only recently it consisted largely of a study of concepts and principles of learning and development without providing treatments, except in the very broadest terms, and of how these could be used by teachers in the classroom. In the last two decades, however, pedagogical psychology has become ever more like a technological study whose content consists largely of prescriptive principles. This trend is obvious from a casual examination of textbooks in pedagogical psychology. It is attributable to demands for practical measures and to the success of research on teacher effectiveness. As psychology becomes more and more a study in pedagogical technology, it tends to lose its status as an academic pedagogical study and to take on more and more the color of a clinical subject. Perhaps this is as it should be, and there is little reason to believe that this trend will be reversed.

However, there is another part of pedagogical psychology which is academic. The study of human development in relation to curriculum development, the study of the relation between intelligence and the social environment, and countless other relations that can be expressed as descriptive knowledge are pedagogically significant, and, while they yield no prescriptions as to how to do this and that as one teaches, they do provide information to guide school personnel as they formulate programs and policies.

The Uses of Clinical Principles

Clinical principles constitute a large part of the content of a training program. We can learn them verbally, and, when so learned, they can be analyzed and discussed, but we may not be able thereby to use them in practice. They can also be learned as ways of behaving. Both modes of learning are necessary in a profession. Just to learn them verbally is to render the principles useless in practice. To follow them behaviorally without understanding is to use them mindlessly.

The shortcomings of mere verbal learning where performance is required are well known, but the disadvantage of performance without conceptual

understanding requires discussion. If teachers do not have command of the principles underlying their practice, they are at the mercy of their own propensities. Two teachers are discussing misbehavior in their classes. Susan, a fourth grade teacher, says that she nips disruption in the bud and that it works for her, implying that since this remedy works in my class it will work in yours. John, another teacher, goes back to his classroom and tries out the suggestion but it does not work. What can be wrong? This case is like that of two mothers, one of whom says my child was sick and I gave it so and so and she got well. The second mother tries the remedy only to find that her child's illness continues. The inference is that since this remedy cured my child, it will cure yours. The mother has no way of knowing whether the two children have the same disease, for she has no principle specifying the conditions to which her treatment is relevant. Reasoning from case to case without mediating principles is groundless and points up both the necessity for teaching principles per se and for using them to mediate skillful performance in professional training.

How do principles function as mediators? If the teacher correctly identifies students who cause disruptions and acts to deter them (conditions), there will be fewer instances of disruptive behavior (consequence). The task of the teacher is to institute the conditions. To do this the teacher does not nip any and all disturbances in the bud, but only selected ones. A teacher who knows the criteria of disruptions that require attention and develops the ability to recognize instances that satisfy the criteria, is well on the way to acquiring control of classroom conduct. This ability can enable the teacher to nip disturbances in the bud successfully. Without it the teacher may nip the wrong bud and thereby increase the disruptions. In short, principles provide the basis for distinguishing among cases and deciding whether the means used in one case are likely to work in another.

A clinical principle, as described above, yields a prescription for attaining a specified end. To know a principle, however, is not the same as knowing how to perform according to the prescription. A trainee may be able to recite a principle, write it in his or her own words, discuss it and identify the referents of its terms and yet be incapable of performing the activities the prescription calls for. Suppose that the prescription says: make your assignments clear if you want your students to do them. Now, a trainee does not know how to make clear assignments, if all he or she can do is to recite the principle any more than he or she knows how to play tennis if only the rules are known. Something else is required and that something else is skill.

What do we mean by "skill"? This is one of the most loosely used psychological terms, and we cannot analyze here the vagaries and ambiguities that surround its uses. But a few distinctions will help to pin down its meaning for the purposes of pedagogical education.

A child learns the multiplication tables, not by thinking them out or reasoning about them, but by sheer repetition. They are rehearsed in memory, recited aloud, written out, and so on until the various products can be used automatically. As they are repeated in various ways the child does not have to reflect upon whether he or she is following the right procedure or any procedure at all. The tables become habitual by repetition so that any element can be used at will without either reflection or variation. Learnings of this sort are habits and are acquired by sheer drill.

Now, skills are not to be confused with habits. Habits, as we have just noted, are identified by fixed patterns of behavior. Skills are flexible. A teacher is said to be skilled in making assignments if the performance varies from one assignment to another, depending upon the interests and prior learning of students, content, time allocation, objectives, and so on. At one time the assignment may be written on the blackboard, given orally at another, or typed and given out at still another.

Just as skills are not habits so are they not performance. Skills are dispositions and are manifested in performance, but they are dispositions which are expressed in a variety of ways. They are acquired not by sheer drill, as are habits, but by repetition under the critical eye of one who can look objectively at the performance from moment to moment, identifying mistakes and providing feedback, encouragement, and other help. Skills are also acquired by practice under the control of self-observation as well as by the observation of a trainer. To practice a skill is to modify one's performance by what is learned from the preceding performance. Learning a skill involves constant use of intelligence, and that is how training differs from sheer drill.

To teach a skill, corrective feedback for instance, we must know its various forms and how they are executed so that if a certain kind of mistake is made by a trainee, we can say: "This is what you do and how you do it." What we say to the trainee is pedagogical content. When the trainee can give feedback in a variety of ways in response to the situation, he or she has acquired a skill.

Summary

We have discussed the subject matter of pedagogical education from a particular viewpoint. As we think about subject matter, we can consider its components and how to classify and organize them for instruction. Or we can climb up out of and above the subject matter and look back at it, noting its elements and their form and utility. We have taken the latter perch. We have analyzed the subject matter into its logical forms and discussed their usefulness in pedagogical education, and, in addition, identified and distinguished two types of subject matter—academic and clinical. In the next chapter we shall continue this perspective as we examine the academic subject matter of pedagogy and the claim that it is practical in a clinical sense because it is theoretical. Then in chapters 10 and 11 we shall turn again to clinical knowledge and how it is related to pedagogical training.

Chapter 7

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Chapter 8

Academic Pedagogical Knowledge: Its Nature and Utility

As noted in the preceding chapter, the knowledge base of pedagogy consists of those concepts and principles which guide and illuminate practice and those which provide the overall intellectual context within which policies and decisions are made. The first of these we call clinical and the second academic pedagogical knowledge. The word "academic" was chosen deliberately because this knowledge is derived in part from academic disciplines and, for the most part, can be taught apart from immediate practical operations.

Academic Pedagogical Studies

Pedagogy, like other empirical professions, depends upon supporting bodies of systematized knowledge. For example, engineering draws heavily from physics and chemistry; agriculture from chemistry and biology; and medicine from chemistry and molecular biology. Pedagogy depends upon the basic sciences of psychology, sociology, anthropology, history, and philosophy. Elements of knowledge about learning and development, the sociology and anthropology of the school and community, the economics of schooling, and about existence, Weltansicht, and knowledge itself are all fibers of the intellectual web in which pedagogical issues are discussed, resolved, and the resolutions justified.

These pedagogical studies can be grouped into three categories, depending upon the nature of their content: empirical and correlational; empirical and noncorrelational; and nonempirical. The first consists of pedagogical psychology, sociology, anthropology, and economics. Their content consists largely of facts, definitions, and the correlates of independent variables. For example, we learn in educational sociology that on the average disruptive behavior of a lower-social-class child is more harshly dealt with than that of a child of more favored classes. From a study of pedagogical anthropology we learn that the mores of minority groups are sometimes at odds with the rules and regulations of the school. If one must decide in a given situation how to handle a problem of conduct, or the reticence of a minority child to do something he or she has been asked to do, a wise decision is more likely if the ways of the social class or the minority group are known. It is the academic pedagogical studies that supply the knowledge base for such practical judgments.

Pedagogical history is somewhat different from these empirical studies. While history is an empirical discipline it provides no correlational findings, but instead facts about past pedagogical undertakings. It tells us not only about the forces and influences that have shaped the institution of schooling but also about the ideas, the hopes, and the struggles of individuals who have devoted themselves to the task of providing education for all the children. Its content is largely factual and descriptive, yielding few if any empirical generalizations.

Philosophy, on the other hand, is a nonempirical study. It consists largely of an examination and criticism of the mores of society as they affect schooling, of the nature and types of knowledge, of a broad context of thought within which pedagogical knowledge is viewed and criticized, and of skill in the analysis of language and fundamental ideas about the human condition.

It is interesting to note again that in the last century, at the very beginning of pedagogical schools, history and philosophy of education were considered of primary importance. They had status within the university programs and were the dominant subjects. Clinical knowledge typically constituted methods courses and was not looked upon with as much favor, often being taught in institutes rather than in the university. Today the order of importance is being reversed with more and more attention being given to clinical subjects and less

and less to academic ones. Most of the State and federally financed research is committed to the expansion of clinical knowledge. In the light of public demand for more effective instruction this emphasis upon clinical research is understandable. But in terms of long-range development of pedagogy the neglect of research in the academic areas is to say the least disconcerting.

Not all of the loss of prestige by academic pedagogical subjects can be attributed to the demand for more effective instruction. Most of the loss is attributable to the fact that the usefulness of academic pedagogical knowledge to teachers and other school personnel is understood neither by those who espouse academic pedagogy nor by those who oppose it. Those who have attempted to justify academic pedagogical subjects have done so with the general claim that they are theoretical and that theory is the most practical form of knowledge. Yet the question of what is meant by theory has seldom been explored, nor has the bearing of theory upon classroom practice been attended to. It is the purpose of this chapter to explore the nature of academic pedagogical knowledge and to set forth its utility.

What Is Theory?

When we speak of theory, just what do we mean? This question can be answered by simply providing a definition and then showing whether or not academic pedagogical knowledge is in fact theoretical as defined. Another approach is to give examples of how "theory" is used and from these examples arrive at the nature of theory and its utility. In short, we can look to see what is meant by "theory" not only in pedagogical discourse but also in other fields. This approach is more desirable than that of simply giving a formal definition, for the latter is necessarily more arbitrary than definitions derived from the use of "theory."

"Theory" is used in a number of ways; some trivial and some significant. The following are four trivial uses with which we shall not be concerned:

1. to refer to abstract and unfamiliar language, as when it is said: "Don't give me all that theory."
2. to mention a conjecture, as when we say, "My theory is that he didn't study for the examination."
3. to refer to a plan we have in mind for attaining an objective; for example, a teacher says: "My theory is that we can increase student appreciation of art by placing pictures and other art objects in the classroom rather than by giving courses in art appreciation."
4. to refer to a verifiable proposition that has not yet been tested empirically, as when we speak of our hunch that feeblemindedness is premature senility as a theory.

In addition, there are five usages of varying degrees of significance, as follows:

1. to refer to propositions that explain certain phenomena as, for example, those that comprise the theory of light
2. to refer to a system of ideals and a set of hunches for realizing them, as when we speak of the humanistic theory of teaching
3. to refer to an extensive and detailed explication of a concept; for example, Dewey's theory of democracy
4. to refer to a set of principles from which practice is derived; for example, the psycholinguistic theory of reading which embraces a set of concepts and principles upon which to develop modes of reading instruction
5. to refer to the codified principles of a discipline, as when we speak of chemical theory.

Theory as Explanatory

Workers in almost all scientific disciplines have sought to develop theory in the sense of number 1. To understand this sophisticated meaning of theory is to see that the relation of theory to practice is more indirect and tenuous than is generally supposed.

Let us consider first the Darwinian theory of evolution. Darwin had made extensive observations of the different species of animals and plants over the earth, especially on the voyage of the Beagle. He had also noted with equal interest the fossil remains of animals and plants buried in the various geological strata, indicating the dynamics of life forms throughout eons of time.

The problem confronted by Darwin was how to account for all these different forms of life and the emergence of new forms from one geological period to another. It occurred to him while reading

Malthus that in the struggle for existence among members of a species some are more favored by variation than others to cope with changes in the environment. This meant that with environmental changes some members of a species were lost and others survived. Over time the surviving forms multiply and establish themselves. Thus the species is modified and a new and permanent variety is slowly established. Observations about the forms of life were explained by changes in circumstances in which some variations survived and others did not. Thus by variation and natural selection the dynamics of forms was explained.

It should be noted that the utility of the theory of evolution was simply to explain a set of conclusions that had been reached; namely, that various forms of life had existed at different geological periods and that in the present period there is also a multiplicity of forms. How these came into existence was a question answered by the theory of evolution. The practical value of the theory, if it can be said to have had any, is simply that it explained how life forms had come to be as they are. No use could be made of it by turning the theory to an economic advantage in the production of better crops, animal forms, or whatever. Yet it has shaped in large measure the basic mentality of the Western World for the past hundred years.

The biomedical theory of disease is another interesting explanatory system. The observable symptoms of disease are posture, facial expression, color, expressions of pain, physical disability, irritability, and general discomfort. These symptoms were noted by early man as indications of sickness and in extreme cases impending death. Sickness has been explained in various ways throughout history. Biomedical theory is the modern, Western explanation.[1] According to this theory, disease is the organic dysfunctioning of the body, and if the dysfunctioning is not at the biochemical level the term "disease" does not apply. Within the framework of this theory medical science has been able to develop a taxonomy of diseases from the findings of pathological studies.

Although the biomedical theory of disease has been remarkably successful in alleviating the discomforts of illness and the reduction of death from almost all diseases, it has been criticized for its failure to explain psychological illness. Defenders of the biomedical theory have been quick to point out that psychological problems rooted in the dysfunctioning of the nervous system or the biochemical system are rightly diseases and can be treated ultimately by substantive means. Other problems of behavior such as character disorders, dependency behavior, social maladaptations, social deviancies, and problems of living are pure and simple behavioral problems and should be treated by psychologists, theologians, and counselors and are not within the domain of the science and art of medicine. This exclusion of behavioral problems from the biomedical theory of disease has been countered by arguments seeking to create a biopsychosocial theory that would be more comprehensive.[2] The modern theory of disease is therefore in a state of flux and is likely to remain that way for some time to come.

We are not concerned here, however, with the controversy about the theory of disease, but rather with the utility of the theory. It is to be noted that, like theory in the foregoing fields, the biomedical theory serves to explain phenomena, to make sense out of that which is either puzzling or disturbing. It explains disease, it does not produce remedies or treatments. These are typically developed by clinicians and pharmaceutical scientists who nevertheless approach their task within the framework of the biochemical theory.

Medical scientists have been able to get inside of the black box, as it were, and to explain the symptoms of illness in terms of pathological findings. Psychologists have attempted to follow the same approach, but have been handicapped by the fact that the inside of the black box is not accessible. Consequently, the psychologist must hypothesize what goes on inside.

Experimentally, as far as learning is concerned, the psychologist attempts to relate responses to environmental factors and conditions under which they occur. Thorndike found that as the cat attempted to escape from the puzzle box it finally reaches a point, after many trials, at which the correct response is made directly upon being placed again in the box. In short, incorrect responses are numerically large for the first escape and gradually diminish from one escape to another until the animal makes the correct response on first trial. From these observations he formulated his three laws of learning—readiness, exercise, and effect. These were empirical laws derived from observation of animal behavior. To explain these laws he resorted to physiological entities; namely the

neurons and synaptic connections. But the explanatory value of these entities was never established.

Since Thorndike, several learning theorists have attempted to account for the learned relationship between the response and the environmental situation by reference to some sort of intervening variable; e.g., Tolman's needs and goals and Hull's stimulus trace and habit strength. A striking exception is Skinner, who ruled out any attempt to explain learning by reference to what goes on in the black box. He did not deny that something goes on, but refused to speculate about it.

Now, we see in the case of psychology the same use of theory that was observed in the other fields. Theory, in the form of intervening variables, is used to explain that which is strange, puzzling, or disturbing. It should be noted, however, that such explanations have not been accorded scientific status. But these "theories," even were they established, would not provide us with prescriptions for accomplishing given ends. These are developed at a much lower level of abstraction and intellectual construction.

Many other theories could be cited from the biological sciences, physical sciences, and behavioral sciences. But these few cases are typical of what would be found were we to recite a more extended list. We can therefore say that a theory, in this sophisticated sense, is a set of concepts and principles that explains some phenomena and which in its most highly developed form, as in theoretical physics, enables us to derive propositions testable by observation and in consequence to establish unsuspected relationships among observable variables. This form of theory is explanatory, not prescriptive.

What then do pedagogical authorities mean when they ask what is the relationship between theory and practice? Or when they assert that theory is practical? It seems reasonable to assume that they are using the term "theory" in a different sense from the use of the term in other empirically based professions and disciplines. For it is clear from the foregoing analysis that theory is not practical in any sense other than that it satisfies our desire for explanations and for an intellectual basis from which to derive relations among phenomena as yet unknown. If there were genuine scientific pedagogical theories, and there is none, they would yield prescriptions of what to do in neither classroom nor school, but would serve to explain specified phenomena.

Theory as Ideology

"Theory" in the number 2 sense designates a pedagogical ideology, a formula put forth as a general remedy for educational ills. An ideology consists of a network of loosely defined concepts laced with undefined values, a set of concepts that determines social reality for its believers,[3] concepts defined so loosely that failure to achieve their promises can be explained away. Ideology does not lend itself to an objective analysis of a situation but aims either to justify it or to replace it with a new and untried reality. The child-centered movement of yesteryears, or open education today, are expressions of a liberal ideology, exposing the assumptions and biases of conventional practices rather than assessing the pedagogical condition and improving it by instituting tested programs and practices. As related to practice, an ideology is little more than an ill-assorted set of hunches.

What practitioners object to when they exclaim against such theory, e.g., open education or psychosocial humanism, is that the ideas threaten to destroy the grounds of their activities vouched for by their professional experience. So long as ideas are perceived as an improvement in their activities, or as replacement of them by others compatible with their general situation, ideas are not likely to be decried as theory.

In the absence of thorough preparation in clinical and academic pedagogy, ideologies move into an intellectual vacuum, giving rise to one radical innovation after another. These ideologies are put forth as if they were valid theories, justified by facts, values, impeccable logic, and theories of learning and development. Today, as in much of the past, pedagogical thought is rife with ideologies. It is easy for the proponents of any ideology to claim superiority over the existing state of school affairs and to make its case plausible as long as no test of its claims is required.

This is precisely the predicament of the pedagogical profession today. Its intellectual life is saturated with struggles among conflicting ideologies, unmindful that in a profession, as in society, too many ideologies lead in the end to the denial of

every system of meaning. Partly because of ideological conflicts pedagogical faculties are today on the verge of defeatism, consoled in some cases by the thought that perhaps a coherent program of pedagogical education is undesirable anyway.

It would be shortsighted to dismiss ideology out of hand, for it can be a source of speculative thought, enabling the profession to think beyond the grounds of its dominant conceptual boundaries. All points of view, if coherent, possibly have something to contribute to our understanding of human learning and teaching, and each also suffers omissions and thus fails to embrace the totality of pedagogical phenomena. But no point of view, however consistent and promising in application, can be taken as inherently valid. Its ideas must stand up to the rigors of research and be warranted at the level of practice, or else treated as mere speculation. Just as children should not be subjected to the vagaries of individual teachers so should they not be required to undergo unwarranted programs and practices emanating from notions that transcend the conventional order. The place of ideologies is not at the forefront of pedagogical training and practice but rather in the intellectual seedbed of those who are working at the cutting edge of pedagogical research, seeking to advance the knowledge base of pedagogy.

Theory as Explication of Concepts

In some pedagogical studies, particularly philosophy, explication of concepts is considered theory. A concept, typically one composed of several subordinate concepts, is analyzed and each component is interpreted so extensively as to expand the concept's meaning into a systematic essay. A classic example is G. E. Moore's elaboration of the utilitarian theory of ethics in which he answers the question of whether there is any general characteristic which all right or good actions have in common.[4] He sets forth the concept of voluntary action and then goes on to show how pleasure characterizes a given voluntary action as right, if and only if no other action the individual could have taken would have produced more pleasure under the circumstances.

A case from pedagogical literature is Dewey's theory of democracy as set forth in his *Democracy and Education*.[5] With far more care than we can give here Dewey elaborates the concept of democracy and the relation it bears to the quality of education. He begins with the claim that education depends upon the quality of group life. But there are all sorts of groups—business, professional, family, gang, robbers, or what have you. So what kind of group life best fosters education? It is one that maximizes both the number and types of shared interests and the interchange among groups comprising the society. And these, according to Dewey, are the earmarks of a democratic community. A gang, for example, minimizes its associations with other groups and restricts the sharing of interests within itself. It is hence undemocratic and provides an undesirable context for education. A classroom optimizes its quality of life and education as it provides increasingly for shared experience and human associations within and beyond the classroom.

In his elaboration of the concept of democracy Dewey tells us only in very general terms how these two criteria of democratic life are to be realized in the school. Among other things, we are to abandon the notion that utilitarian studies are inferior to so-called cultural studies, to develop a curriculum that makes thinking its central feature, and to emphasize teaching and learning as inquiry. But just how these exhortations are to be implemented is not suggested. A teacher who understood Dewey's theory of democracy, who clearly recognized what it called for, would still not know specifically what to do in order to put it into practice. So, what Dewey gives us is a rich and insightful explication of the concept of democracy that, like other notions of theory thus far discussed, is operationally groundless. However, the failure to suggest operations is not surprising, for it is not the province of philosophy to provide procedures and techniques for putting its theoretical constructions into practice.

Yet philosophy can make a significant contribution to the teacher's stock of skills, although this fact is seldom recognized. Philosophy is an explicatory study par excellence. There is no other pedagogical discipline that depends upon an exhaustive analysis of concepts as its primary intellectual tool.[6] This analytic tool can be constantly useful to the teacher as he or she carries on the process of teaching. It can be said with little risk of embarrassment that skills in explication are as important perhaps as any skill used in classroom performance, especially at the higher levels of instruction. But the program of pedagogical education has

given all too little attention to the development of these skills.

Theory as a Body of Prescriptive Principles

"Theory" is sometimes used to designate a set of propositions that tell how to accomplish a particular objective. Usually these are correlational principles functionally harmonized to a set of objectives. They tell the consequence of a given way of behaving in a particular set of circumstances. For example, Morrison's theory of teaching distinguishes three types of learning outcomes—understanding, appreciation, and ability. These give rise to different modes of teaching, but certain principles are common to all modes, as follows:

- —Objectives are to be identified as a guide to teaching, testing, and learning.
- —The learning cycle of each mode consists of stimulus, assimilation, and reaction.
- —All learning begins with unfocused activities and the teacher must exercise patience as learning gets underway.
- —Teaching is to be direct as determined by the type of objective. Reading, for example, is not taught by lecturing but by engaging the student in practice.
- —Learning comes from study—"learning by one's own effort."
- —An adequate apperceptive mass must be established; new things are learned by relating them to what one already knows.[7]

This sketch is not even the bare bones of Morrison's theory, which includes a number of other elements such as on-task behavior, formula for mastery learning and teaching, and control of pupil progress. But this brief sketch, although incomplete, gives a rough idea of prescriptive theory.

Theory in this sense was foreshadowed in the preceding chapter where condition-consequence principles were discussed as a form of pedagogical knowledge. All that is meant by this notion of theory is a generalized plan of operation together with its conceptual underpinnings.

Theory as a Body of Descriptive Principles

Another conception has it that theory consists of a body of concepts and principles woven partly from the substance of academic disciplines and partly from pedagogical research rooted in these disciplines. These concepts and principles comprise systematized bodies of knowledge referred to as educational sociology, anthropology, psychology, philosophy, and so on, and are theoretical in the sense that, with few exceptions, they are seldom related to the classroom work of the teacher. Consider the following statements as empirical principles from educational sociology:

- —"The higher the parents' status, the better the child's equipment for retaining his status, but the less his chances of improving it (simply because there is nowhere to go from high status but down)."
- —"The child's chances for upward mobility are directly influenced by his experience within the family. For example, the more the child is involved with his parents and other adults and the less with his peers, the more likely his upward mobility."
- —"Those ethnic groups that value learning, promote early independence of children, and defer gratifications are particularly likely to advance in the class system."
- —"The further lower-class youths go in school, the less vocational their training, the more opportunities open to them and the more deliberate and less fortuitous is their choice of a first job.'
- —"In broad terms, class continuity is more constant in a society than interclass mobility."[8]

It would be difficult, if not impossible, to justify these principles in a program of pedagogical education on the grounds that they are useful in the art of teaching. Yet there are good reasons why they should be included in any defensible program.

Are These Types of Theories Useful to School Personnel?

When the claim is made that academic pedagogical knowledge is theoretical and that it is thereby practical, which of the foregoing senses of theory is meant and in what context and for what purpose is it practical? Since explanatory theory is seldom found, if ever, in the science of pedagogy, there is little likelihood that reference is made to this type of theory when academic pedagogy is defended. But even if explanatory theory were intended, the claim would be untenable because, as we have amply seen, such theory is useless except to

explain some set of phenomena or to predict new relationships among phenomena.

The second use of the term theory, namely, as an ideology, is apparently not what is meant by theory in academic pedagogical studies, for these studies, with the possible exception of philosophy, do not deal with ideologies. However, if this were what was meant by theory, the claim of teachers that theory is not practical would be easy to defend, for an ideology at best is an ill-assorted bundle of hunches about what might conceivably be done in the classroom but without any empirical validation of the means of achieving its ends.

With the exception of philosophy, theory as explication can be ruled out of consideration for the simple reason that other studies give little or no attention to this view of theory, nor do they engage to any significant degree in explication itself.

It is unlikely that a body of prescriptive principles is what is meant by theory in academic pedagogy, for such pedagogy does not include prescriptions but rather descriptive propositions about how things are, verified to some degree and operationally groundless.

The concepts and principles comprising descriptive knowledge most nearly conforms to the content of academic pedagogical studies, save philosophy, and is perhaps what is frequently meant by "theory" when theory is said to be practical. But, in any event, academic pedagogy yields few, if any, rules of teaching behavior.

The Utility of Academic Pedagogical Knowledge

The upshot of the foregoing discussion of theory is that academic pedagogical studies are not practical in the clinical sense. They yield few, if any, principles that tell *how* to attain a given effect. Teachers are correct when they assert that what they learn in the so-called foundations of education is not helpful in managing the classroom and carrying on instructional activities. But this should not be taken to mean, as it often has been, that academic pedagogy is useless. On the contrary, it provides a body of descriptive principles which tell how things are, statements describing relationships between factors of the environment and the growth of children, the impact of the socioeconomic environment upon the school and the teacher's work.

Let us now face the real question: for what is the content of academic pedagogy to be used? Academic pedagogical knowledge functions in at least three ways:

- —as the wellspring of our hunches
- —as the substance out of which policies are formed
- —as ingredients entering into and shaping our decisions.

Just as discourse never exhausts its subject matter, so thinking never exhausts its knowledge. There is always something left over, unspoken, and perhaps unspeakable. This reservoir of hidden intellectual resources gives rise to "happy thoughts" about what to do, how to handle situations, how to solve problems, or whatever. We are not born with these intellectual resources. They are acquired perhaps as by-products of our experiences that sink, so to speak, into the deeper layers of the self. From this wellspring come our most productive hunches. As Dewey said, we do not deliberately bring them about; they just happen to us.

While we have no scientific evidence of how such a reservoir of intellectual resources is developed, we do know that individuals who have little or no experience in a given area of knowledge are unlikely to have fruitful hunches. An extensive literature attests the fact that almost everyone steeped in the knowledge of a discipline has had the experience of such ideas occurring at off moments after having worked intensively at a problem. It seems reasonable to assume that without some sort of intellectual resource not immediately expressible these moments of illumination would not occur. It must be recognized, however, that clinical knowledge contributes to this function perhaps no less than academic knowledge.

The other two uses of academic pedagogical knowledge are more direct and evident. The classroom is not the sole domain of teachers, for they are necessarily caught up in networks of organizations and community relationships from which policies and actions arise that affect directly themselves, students, and school operations. What is true of teachers in this regard is no less true of all pedagogical personnel. To take part in efforts of the profession to turn these influences in constructive directions is the responsibility of teachers as well as of administrators and other personnel. If they are to understand and influence these social and

political forces, the personnel must have command of the elements of academic pedagogical studies.

It is equally important to recognize that teachers are also daily involved in the making of decisions and from time to time in the formulation of policies. Just as it is necessary to have certain academic pedagogical knowledge to understand and participate in the network of relationships that involve the school, so is it equally important that the teacher have such knowledge for the purpose of engaging in the process of forming policies and making decisions.

Up to this point we have proceeded as if there were common understanding about the meaning of "policy" and "decision." Since there is probably no common understanding of these terms, it is in order to briefly indicate their use. By a policy we mean rules by which to behave in a set of similar situations.[9] For example, teachers and school authorities are confronted by a variety of instances in which the question of whether to promote a child to another grade must be considered and answered. To consider each and every case as though it were unique would require endless time and energy. To obviate this possibility a set of rules is worked out so that to promote or not to promote in a given case depends upon how it fits the rules. Such a set of rules is a policy.

It is a well-known fact that as institutions become more complex it becomes necessary to deal less and less with each case as a distinct problem and to depend more and more upon rules that define the actions to be taken in all similar cases. Thus bureaucracies are the mother of policies. The more highly organized the school, the more the teacher is involved in the formulation of policies and in the application of them to particular instances. In pedagogical work there are policies about promotions, about student conduct, about the uses of the library, about participation in athletics, about faculty conduct, about bussing, about program requirements, and so on without end. Sometimes these policies are crescive, as when they are formed bit by bit over time; more often they are deliberately constructed by teachers and other school personnel, by parent-school committees, by professional organizations, by boards of education, and by State and Federal governments.

It should be emphasized again that the use of academic pedagogical knowledge, unlike clinical knowledge, is not appropriate for the development of skills for either classroom or interaction with peers and laypersons. Its value lies in the fact that it can enhance the chances that wise policies will be made about children, educational programs, community relations, evaluation of various features of the pedagogical enterprise, and so on. School personnel, including teachers, who are uninformed in academic pedagogy are simply at a disadvantage when they have to deal with the political and social issues in which the school is necessarily involved, when they must confront pressure groups of one kind or another who are either protesting or defending a given policy or set of policies, or when confronted by the necessity for developing policies or programs to alleviate anxieties of various segments of the school community.

Academic pedagogical knowledge is also useful in decisionmaking. But in order to understand the function of knowledge in this respect it is necessary to clarify what is meant by "decision." A decision marks the termination of thought and the point at which action may be taken. The need for a decision arises out of a situation in which the individual does not know what course of action to take.

There are two kinds of decisions. The first kind is comparatively simple and is made by the application of policies to particular cases. If we have a school policy with respect to class attendance and a student is absent, we know what to do provided we know the circumstances and whether those circumstances come within the rules of the policy. If they do, a straightforward decision can be made with little or no further consideration.

However, there are situations for which no policies exist. If a teacher, or some other member of the school personnel, is confronted by a situation of this kind, he or she must make a decision and that decision should rest on as much evidence as possible. If, for example, there is a school activity such as the traditional celebration of a particular day, say May Day, and a child refuses to participate in the activities, the teacher may be in a quandary as to what to do with respect to that particular student. However, if the teacher knows that the child comes from a minority group, let us say some religious sect or some minority that does not approve of the exercises, the teacher will likely treat the child differently if he or she is aware of the cultural orientation of the child. A decision in such a case may very well be different from what it would be were the child from a group quite in harmony

with the exercises. In the latter case, the teacher would have grounds for suspecting that the child had ulterior reasons, and might seek further information.

In the foregoing case a decision situation is somewhat similar to a problem situation. In a problem situation data are collected and hunches are tried out in imagination. Finally the most defensible hunch is tested, and, if it satisfies the test, is taken as a warranted conclusion. Decision situations, like problems, require information for their resolution. But the two situations are fundamentally different. The termination of thought in a problem situation settles a question of belief; in a decision situation it settles a course of action. Unlike a conclusion, a decision is neither true nor false but rather wise or unwise.

When we speak of decisionmaking for teachers and most school personnel below the level of major administrative positions, we do not have reference to sophisticated models emanating from decision sciences. In recent years an extensive body of scientific knowledge has been developed concerning decision and policy analysis, much of it stemming from research on strategies and decisions in game theory. Those of us in pedagogy have not infrequently become enamored of developments in other fields that have limited application to our own, and, despite this limited utility, have attempted to build a complex structure of procedures that in the end proved to be more burdensome and less effective in pedagogical work than we had anticipated.

In the preparation of administrators for universities and school systems as well as governmental agencies and research firms, there is probably good reason for intensive training in the decision sciences and policy analysis. Pedagogical schools should be prepared to equip school administrators in the techniques and procedures of the decision sciences.

However, there is little reason to emphasize this sort of preparation for teachers. This seems justified on two grounds. First, many decisions that teachers make are for situations that are constantly recurring, and the teacher soon learns, on the basis of the recurring evidence, that such and such is the best course of action to take. In the second place, many other decisions are made by reference to policies well-formulated and understood.

Nevertheless, teachers need to have experience in the course of their preparation in the use of academic pedagogical knowledge in formulating policies and decisions. This means that a case study and field approach to the teaching of academic pedagogical studies should be given serious consideration as a way of helping the teacher not only to understand the knowledge itself but also how to make use of it in all sorts of decision situations.

Summary

We have examined the claim that academic pedagogical studies are theoretical and for this reason practical. We found it necessary to examine this claim at some length in order to clear the ground for a discussion of how academic pedagogy can contribute to the activities of the school personnel. The analysis of the various conceptions of theory enables us to see that theory in these senses, save prescriptive theory, have little or no clinical utility. If this analysis is correct, then it is clearly indicated that academic pedagogy must be taught for other purposes. These purposes, as we have seen, are to provide a seedbed of knowledge, to provide information for policy formulation and decisionmaking. If these studies are taught with these purposes in mind, and if they are definitely related in field experiences and in case studies to these purposes, they can come into their own and prove their worth.

Chapter 8

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Chapter 9

Teaching and the Domains of Training

What is teaching? Is it an amorphous behavior so pliable that it can take on any form whipped up by the winds of doctrine? Or does it have a definite character, varying little with conditions, and strictly limited as to form? Implicit in this issue are certain fundamental questions: Whether in research and training to model the teacher or use the teacher as the model; whether teaching is a derived or indigenous form of behavior having its own structure and amenable to study and improvement in its own right.

That teaching can take almost any form is a presupposition of much current thinking. This presupposition is here directly held in question. Efforts to formulate models of teaching such as behavior modification and nondirective teaching reflect this assumption. The multiplicity of models of teaching, one compilation consisting of 16,[1] puzzles the mind and makes one wonder whether the poverty of pedagogical education as well as much research is attributable to divisions of opinion about the nature of teaching itself.

Is teaching so complex, so many-sided, so variable with circumstances that it must be conceptualized in many ways? How can research results from a multiplicity of models be synthesized into a system of practice when a particular practice is itself held to be peculiar to a model? Or is it likely that behavior modification, nondirective teaching, and so on are not models at all but simply an exaggeration of certain components of teaching? Do the models spring from psychological, moral, and political doctrines and beliefs justified only by a modicum of data and the sentiment of logicality? Is it advantageous to view teaching as a pedagogical formula put forth as a logical consequence of allegedly sound principles of some discipline such as psychology or philosophy? Have we dissolved the question—what is teaching—in a pool of models?

Teaching As Indigenous Behavior

Teaching is an ancient behavioral structure; its origin lost in antiquity. It antedates schools, and so far as is known, it was neither created nor enacted but evolved out of crude necessity as humankind began to pass on its folkways and mores to the young. Noninstinctual behavior was perhaps first learned by imitation, and as the complexity of the culture increased teaching began to take shape, first, as primitive ways of showing and telling, and then gradually, as a behavioral structure to serve the interests of the group; the whole course of its evolution guided perhaps from the beginning by some obscure sense of tribal welfare.

Some idea of the early notion of teaching can be gained from the history of the word. "Teach" comes from the Teutonic term "taikjan," meaning to show. To teach is to show someone something. The term "token" is a conjugate of "taikjan" meaning a sign or symbol. "Teach" and "token" are related etymologically. To teach is to show, point to, call attention to acts, events, objects by signs or symbols. This primitive notion of "teach" appears to be simple but its complex ramifications can be seen from the following uses of "show:"

- —to reveal one's feelings, as the teacher showed his dissatisfaction with the work or his anger in the situation
- —to direct a person's attention to something, as the teacher showed them a picture
- —to guide behavior, as the teachers showed them how to place their fingers on the keyboard
- —to make clear analytically, as the teacher showed them the parts of the flower
- —to make clear by comparing, as the teacher showed them the difference between a rectangle and a square
- —to make clear by a series of operations, as the teacher showed them how to connect lights in a series or how to work the problem
- —to make evident by logical steps, as the teacher showed them how to prove the proposition.[2]

By trial and error, showing and telling turned out to be more successful in inducing learning than mere imitation or situational learning without intervention. These successful modes were retained and through the ages became fixed in culture after culture.

It is plausible that ways of obtaining food, clothing, and shelter were first passed on by example, although not deliberately, and learned by imitation much as speech is learned today. But the symbolic elements of the tribal culture—ceremonies and incantations—were likely instilled deliberately. These were rituals, and teaching had to be explicit to assure preciseness of performance. Language as an instructional medium became prominent because ceremonies and incantations were partly vocal. Speech also probably became increasingly used in teaching as deviations in performance were noted, and corrected by calling attention to them and showing how to correct the error. These individuals—medicine men, sorcerers, priests, call them what you will—were probably the first teachers although not designated as such. As primitive societies advanced, these early teachers developed priesthoods, and in time some individuals were given special instruction for admission to the priesthood. Teaching then probably became more formal and more explicit as a distinct form of behavior.

Early teaching foreshadowed today's more sophisticated teaching. Whether it occurred in the tribe or family, teaching almost certainly consisted of a learner in a situation, being shown or told how to do something and corrected and approved or disapproved, depending upon his or her performance, or else, allowing learners to work themselves out of situations with little intervention.

The point is that teaching is not a derived phenomenon. It was not evolved from psychological concepts and principles or from the principles of any other discipline. Just as the principles of cooking cannot be derived from studying eating, so the principles of teaching cannot come from the study of learning.[3] Throughout most of the current century the prevailing pedagogical opinion has held, however, that in order to know how to teach one must first know what learning is and the conditions under which it occurs. Since psychology is the source of such knowledge, modes of teaching, so it was believed, can and should be derived from it. This view has the ring of logical certainty, for if we know how to create these conditions it follows that we thereby know how to teach. This argument is not only logical but it also contains an element of truth. Teaching certainly has been improved by studying its components, and many of these improvements can be traced to psychological research itself and to the use of psychological concepts and principles in pedagogical research. But all this is a far cry from the notion that teaching has been or can be derived from psychological knowledge.

It is well-known that the practical arts originated long before the sciences that provide insights for their improvement. The domestication of plants and animals preceded the development of agricultural sciences, and, while these sciences have revolutionized the production of food, the art of farming is in its basic elements unchanged. Treatment of the sick began long before the science of medicine emerged. Yet the art of the physician is basically the same as it was at the beginning—diagnosing and treating. Only the knowledge-base, materials, techniques, and procedures have changed. It is the same with the art of teaching.

The psychology of learning itself has been developed, unwittingly to be sure, from experimental conditions that were replicas of primitive teaching situations. Thorndike contrived puzzle boxes and mazes for his experiments that placed animals in situations from which they learned as they escaped by trial and error. The animals learned by working themselves out of situations—rudimentary problem solving. Skinner's experiments were built upon Thorndike's work, refining it by introducing reinforcers, a form of rudimentary intervention, to shape the animal's random movements in a predetermined direction. These experimental conditions are mirrored by primitive teaching situations where the individual learned either by coping with a situation or by being shown or told how to do something. In other words, these studies of learning could be presented as studies of primitive teaching.

The Prototype of Teaching

Teaching is not only a natural form of behavior but also an interdependent system. In its primitive form it included the components of its most highly developed state: agent, subjects, ends, and circumstances. The circumstances consist of material means—tools and other paraphernalia—over which the agent has control; and conditions—material setting—under which the material means are used and over which the agent has much less control. The ends are abilities and other dispositions engendered in the subjects. The agent is a bearer of knowledge superior to that of the subjects and who guides the learning.

In the advanced stage of teaching its components become so ramified and interrelated that teaching becomes a very intricate phenomenon, not only exhibiting a multiplicity of new relations among its components but also involving ends not served in its early development.

Research is enabling us to understand the components as an interdependent system. While research is a long way from giving a description of teaching in its total variety, recognition of its components as foci of research is not a mean achievement. We shall not attempt to discuss the system in the context of research findings, for that will require more care than can be given here. Rather ours is a simple interest in showing the interdependence of the components.

The material setting no less than the material with which they work influence learners and teachers alike. The interdependence of the learner and the material environment varies with the level of personal development. The very young child has little capacity to cushion the impact of environmental stimuli. The older child can more easily counter this influence by directing attention to other aspects of his or her world. Thus the material surroundings of the nursery school and kindergarten are more important than those of the high school, although they are not to be neglected even there.

Likewise, the teacher as agent is influenced by the circumstances of work. What teachers have to work with and the conditions of their work affect what they do, what they think is possible, and their feelings of satisfaction, and these in turn affect the learners. However, the teacher can modify the material setting, although narrowly, and thereby affect the students. The characteristics of students—achievement, level of development, capacity and interests—affect the choice of ends. The ends-in-view influence the behavior of teachers, their choice of materials of instruction, and how they are to be used. The learner's reaction to these in turn affects the teacher's decision about what to do next. These components form a network of relationships so intricate, so wrapped in personal perspectives and interpersonal relationships, so pervaded with symbolic and linguistic behavior as to challenge our research knowledge as well as our understanding.

Subsystem: Teacher-Student Interaction

Within the interdependent system is a subsystem of interaction between teacher and students. This is the heart of the system with respect to pedagogical training, for the skills of teaching are exercised primarily in this part of the system. The teacher acts and the learner reacts to the teacher and in so doing influences the teacher's subsequent acts. For the students' state of learning—achievement, difficulties, tendencies, and needs—is reflected in their reactions and these reflections, as observed by teachers, are cues which guide the teachers' performances. These reciprocating acts can be initiated or terminated by either the teacher or the student.

Such interaction is not the same as the interaction in a dogfight, although there are similarities. In the dogfight, the act of one dog is a stimulus to the other to act and its act then becomes a stimulus for the first dog to act. So the fight goes on in a sort of "conversation of gestures" as George Herbert Mead called it.[4] There is no reflection, for the act of one dog immediately follows the act of the other. But the interaction between teacher and student, except in cases of sudden and serious disruptive behavior, is guided by considerations stemming partly from the teacher's knowledge of how to proceed and partly from the fact that there is subject matter involved in the interaction. The teacher interacts with the student through a body of knowledge, and the student in turn interacts with the teacher through the same material. In this way the student and teacher interact until the student has either acquired the knowledge, or else has learned enough to pursue it alone.

The component dominating the entire interdependent system is the teacher. In the final analysis, it is the teacher more than any other component that makes the system effective as measured by the ends achieved. While teachers can and do act deliberately from moment to moment, in a general and unobtrusive sense their performance is colored by the demands of the system. Unintentionally, but quite necessarily, teachers shape students in the image of themselves in the sense that they intend for students to acquire certain knowledge they have themselves acquired and in that sense become like themselves. Furthermore, teachers intend that objectives, when attained,

shall become useful and permanent characteristics of their students as persons. No other occupation, save perhaps the priesthood, bears such formative relationship between the agent and the subject. This relationship, generalized to cover the teacher as a person, lies at the root of public concern about the preparation and conduct of teachers. Furthermore, because teachers intend to change the abilities and dispositions of their students as they interact with them, their discourse differs from ordinary utterance. They intend that what they say shall be remembered, not in so many words but in meaning. Their discourse tends to be cadenced and is perhaps most effective when it is free of ambiguity, vagueness, and indefiniteness.[5]

Didactics and Heuristics

Historically, the subsystem of interaction has been conceptualized in two ways. In the first, the direction and character of the activities involved in the teacher-student relationship are shaped by the teacher in terms of information about students, principles and techniques of teaching, the content of instruction, and other resources. The teacher determines what is to be done, how and when it is to be done, and what it is to be done for. This is didactics, sometimes called direct teaching. In the second, the formula specifies that the acts of teaching become acts performed conjointly by students and teachers. The students plan with the teacher what is to be done, how and when it is to be done, and the assessment of results. This is heuristics, variously called inductive method, discovery method, inquiry teaching, child-centered teaching, and the like.

Didactics is the art and science of instructing students in knowledge and skills; heuristics is the art and science of training students how to search and find out for themselves. Both of these stem from the primitive conditions of learning. As noted earlier, teaching originally took one or the other of two approaches to learning: first, the learners acquire certain abilities by deliberate instruction, as in the fixing of ritual behavior, and second, by working themselves out of situations with little or no intervention.

These two modes of teaching are not entirely distinct, for they result in somewhat similar outcomes. Didactics develops the ability to solve problems and a positive feeling toward learning no less than heuristics. But if the distinction is not overdrawn, it is useful to recognize the difference between them. Since heuristics tends on the whole to allow more flexibility and variation of learning activities, it provides a freer change of pace for both teachers and students than didactic instruction. This was recognized by Carlton Washburn, superintendent of Winnetka Schools in the 1920's, when he introduced a program of systematic teaching for one part of the school day and an activity program for the other part.[6]

These forms of teaching have become more accurately understood from research on the processes of human interaction in a variety of contexts—clinical, social, political, scientific, and educational. But unfortunately leaders of the pedagogical professions have failed to assimilate the relevant elements of this research to the didactic and heuristic modes of interaction. Instead they have attempted to mold the results of research in these various contexts into one model of teaching after another. Among these are such "models" as inquiry, group inquiry, inductive, advance organizers, nondirective, awareness training, conceptual, and operant.[7] Aside from the fact that these either are peripheral or are emphases upon one or another aspect of didactic, or heuristic modes, they accentuate the tendency among faculties of pedagogy to separate into camps, one trying to shape the teacher as a developer of the affective and personal side of students and the other the cognitive side.

While these two patterns of teaching differ in the amount of student collaboration in determining the direction and activities of learning, the heuristic no less than the didactic teacners plan and direct their own acts by reference to their knowledge of students, principles of teaching, and content of instruction. The heuristic teacher decides how to manage and conduct his or her classroom as independently of students as does the didactic teacher. They both must decide how to engage their students, how to maintain momentum, how to manage materials, how to deal with disruptions, and so on. They differ in what they plan for; the heuristic teacher plans how to help the students help themselves, whereas the didactic teacher takes them directly to what they would find out if their self-search were successful.

The Knowledge Approach to Training

Knowledge about these two modes of teaching falls into six categories and these constitute the domains of training as follows:[8]

1. Observation
2. Diagnosis of
   a) student abilities
   b) learning obstacles
   c) environmental conditions
   d) programs of instruction
3. Planning of
   a) short-range program
   b) long-range program
4. Management of
   a) space, time, and resources
   b) instruction
   c) students
5. Communication with
   a) peers
   b) parents and other laymen
   c) students
6. Evaluation of
   a) student achievement and conduct
   b) instructional program

We are not concerned here with ways to conduct training, for they will be discussed in subsequent pages. Instead the categories of knowledge with which to carry on training is now the focus of our attention. To construct a program of professional training is to have a knowledge base and to know the categories of performance to which the knowledge belongs. In other words, we must identify the domains of performance for which the skills of pedagogy are to be developed. Once the domains are identified and principles of effective teaching classified according to these domains, it is then appropriate to develop the conditions of training.

This reverses the current procedure for developing a program of pedagogical training that begins with objectives and then works out activities and procedures deemed to be appropriate to their realization. Where the knowledge of a field is well-established and understood alike by those who represent it, the initiation of program development via instructional objectives is defensible. Since instructional objectives are derived from knowledge, there is little possibility of a disjunction between the two. But to approach program development by first formulating objectives in a field when its knowledge is not held in common or mutually understood is likely to be misleading and unproductive. This has been a defect of pedagogical education throughout the current century.

Anyone familiar with pedagogical faculties can attest the fact that their members are of many stripes. Some are familiar with research on teaching but make no use of it. Others try to apply it but do not know how, or else find they have no resources for doing so. By far the largest number know nothing about it and some claim it does not exist.

To begin with objectives where such disparity exists is to court faculty frustration and ultimately failure. For one thing, some objectives—especially those derived from ideological formulas—will be put forth without knowledge to validate and realize them. For example, efforts to prepare teachers to help students to be self-realizing individuals or to become creative have resulted in less than effective instruction when judged by either the intended goals or cognitive criteria. For another thing, to begin with objectives is to miss the range of clinical pedagogical knowledge and, in consequence, to neglect some elements of teaching which have been shown empirically to be effective. Were this not so, the research on didactics would have had more influence on practice during the last 25 years. For still another thing, professors are typically ill-informed about clinical pedagogical knowledge, not to mention research on training itself, and this is attributable in large part to preoccupation with objectives instead of knowledge from which objectives, if valid, are derived. No one has stated the matter as clearly as Medley when he said:

> Teacher education, both at the preservice and the inservice level, should adopt as primary goals the development of the competencies needed to create and maintain the learning environment, to engage pupils in learning-related activities, and to implement the kind of instruction that research indicates is provided by effective teachers. There is an abundance of practical knowledge available about how to do these things; what has been missing in the past is a clear conviction on the part of teacher educators that these things are what teachers ought to be doing. Much effort has been wasted in training teachers to behave in the ways that the least effective ones do. A change in direction, so that beginning teachers will no longer need to unlearn so much, should produce a substantial, if not a dramatic, improvement in the achievement of pupils.[9]

We are approaching the problem of program development by identifying the domains of training and in the next chapter we shall present enough samples of knowledge in each of these domains to indicate the character of the knowledge appropriate for training.

Domains of Training

The first domain, the one that permeates all the others, is observation. The ability to observe a phenomenon objectively is one of the primary marks of a professional in any field. In a field that involves relationships among human being objective observation is especially important. It is a safeguard against biases and prejudices of all sorts—racial, class, socioeconomic, ideological, and personal. Equally important is the fact that only by objective observation of phenomena can a professional know what he is working with. The skills of observation are basic to the teacher's performance in the classroom. For a teacher who cannot tell what is going on will be unable to respond appropriately and effectively to the events.

Failure to develop skills of observation accounts in no small measure for the fact that pedagogical faculties no less than public school teachers find it extremely difficult to observe what goes on in the classroom without making judgments about its worth. Rating scales of instruction have tended on the whole to reinforce this failure to distinguish between objectivity and valuation in the process of observation. Rating scales are by nature evaluative instruments, and the use of them tends to inculcate habits of biased observation.

As one observes the students in a class or the performance of a teacher he or she must be able to state what is happening without reference to any opinion about its value. What is the teacher doing at a given moment? Is the teacher teaching a concept, asking contrary-to-fact question, teaching a principle, a skill, or whatever? Is the teacher reinforcing the behavior of a student? Or is the teacher giving feedback? Is the teacher identifying an obstacle to learning? Is the student's conduct disruptive? Is the student on task? What proportion of the class is on task? These are only samples of the simpler sorts of things that a professional should be able to identify objectively in a classroom situation.

The question of how to develop the skills of observation is not of concern at the moment, but one or two points need to be made. In the first place, learning to observe is extremely difficult. It requires that there be criteria, attributes, so to speak, which mark a particular bit of behavior as being one of this kind or that. It requires also that the individual be so familiar with these criteria that their occurrence in behavior can be recognized almost automatically in complex teaching situations. To acquire this ability requires extended practice in observing and analyzing behavior.

Another domain of training is diagnosis. Diagnosis pertains to at least four aspects of the teacher's work: student abilities, learning difficulties, environment, and program of instruction. While teachers have for a long time been aware that some students do not learn because of one factor or another—failure to apply themselves, lack of proper parental influence, lack of interest, and so on—the skills and techniques of diagnosis have been identified and developed only in recent years. One needs only to note improvements in tests and other instruments for identifying pupils who suffer from physical handicaps such as sight, hearing brain damage, and from psychological maladjustments of one sort or another to realize how pedagogical diagnosis has come into its own.

Moreover, it has become evident that a large proportion of the difficulties students experience in learning are content specific. The difficulties children encounter in learning to read are quite different from those confronted in the learning of science or social studies. For example, there are obstacles to learning such as lack of knowledge or skill prerequisite to the learning of a task. In such cases, it is incumbent on the teacher to ascertain whether the student has the prerequisite learning if he is unable to cope with the task.

The teacher must also have the knowledge and skill that enables him or her to identify environmental deficiencies that impede teaching and learning. The skills that are involved in this aspect of diagnosis are not as well-established as others, but there is at least enough information now available to enable the teacher to be sensitive to the classroom environment in its physical, social, and psychological dimensions.

Diagnosing the environment from the physical standpoint is comparatively simple, for it involves

such matters as temperature, arrangement of seats appropriate to the immediate objectives of instruction, bulletin board displays, and appropriate books and other equipment of instruction.

The diagnosis of the social aspects of the environment is somewhat more difficult, for it requires judgments about the degree of control to be exercised and the amount of warmth the teacher should display toward the students. It is well-known that there is some sort of middle ground with respect to the amount of freedom students may exercise in the class situation as opposed to the amount of systematic regulation the teacher may exercise. Too much of either will tend to depreciate the results of study and instruction.

Diagnosing the instructional program is something that the teacher has to do in terms of his or her knowledge of the subject matter of instruction. For example, a teacher who does not know the hierarchical structure of arithmetic will be at a disadvantage not only in identifying the difficulty a student has for lack of prerequisite knowledge but also in sequencing the content of instruction.

Planning, as an area of training, is an activity in which the future teacher must learn to exercise a wide range of judgments. Planning has reference to what the teacher does to get ready for the activities to be carried on during a class period, all class periods of a day, a week or longer. Planning for one or more class periods is usually thought of as instructional planning. Planning of a total program over a long period of time, say, for a semester, is considered program planning. Usually program planning is carried on by a group of teachers who are concerned with the same grades or a combination of grades. But the sort of judgments and skills required for planning a class may be involved in one way or another in program planning.

In planning, the teacher gives attention to the following: objectives, assignments, flexibility, instructional activities, needs of individual students, the content to be included or emphasized, activities the students are to engage in, conduct problems, and evaluation. During the period of training attention should be given to all these aspects and perhaps others, although, as the teacher becomes experienced, some of these will be performed automatically and thus drop out of planning. Recent research suggests, for example, that experienced teachers tend to give more attention to content and less to objectives.[10]

The fourth domain of training is management. It includes a number of components. Among other things, the teacher manages the process of instruction, the utilization of time, space, resources, and pupil conduct. With the exception of diagnosis, this is the domain in which more time must be devoted to training than perhaps any other. It is here that the prospective teacher must be disciplined in the skills of teaching and all the various aspects of classroom management. It is here that skills involved in such activities as lesson development, conduct of independent work, recitation, reinforcement, feedback, assignment making, and student accountability are to be developed.

Professional communication is a domain of training that is typically neglected in almost all pedagogical programs. The teacher converses not only with students but also with teachers and parents in face-to-face settings, in committees, and in large organizations as well as with administrative and supervisory staff. This entails skills of listening, interpreting, translating, and responding in ways to elicit further information. A great deal of the elementary aspects of counseling should be taught to teachers in order that they learn to communicate in ways that are ingratiating and at the same time effective in getting and giving information.

The domain of evaluation is one in which the teacher must be trained not only in the techniques and procedures of evaluating pupil progress but also in the analysis of data related to diagnosing and planning of instruction. Hence, there is good reason to develop skills in evaluation along with diagnostic and feedback skills. The present practice of separating evaluation from diagnosis and instruction in a training program helps to perpetuate the isolation of work in evaluation as a form of study useful mainly at advanced levels.

The Training Component Is Crucial

The training component should consume the major part of the pedagogical program regardless of whether the student intends to become a teacher, counselor, administrator, education director, or whatever, for teaching ability is basic to all pedagogical positions. The skills of teaching cannot be acquired by formal courses in method, or by uncontrolled experience in practice situations, or by any other means than that of systematic and progressive training.

Moreover, the teacher of teachers must use tested procedures, techniques, and materials of training as they are available. And they must themselves possess the skills in which they are training the future teacher as well as the techniques and procedures of the training operation. We definitely know what we are about when we proceed to train students for teaching, so that we can now carry on training with the thoroughness and care that the commitment of the profession to the Nation's children requires.

The program of training must have first claim on the time, energy, and the resources of the institution. This training must be carried on, and carried on systematically and thoroughly, to the end that the teacher is skilled and in possession of knowledge to justify and defend the skills.

A considerable amount of research on the procedures and techniques of pedagogical training is available. In general, it bears upon two aspects of the teacher's preparation: the acquisition of concepts and principles, and discipline in skills of observation and classroom performance.

The conventional practice has been to teach the concepts of psychology and other pedagogical subjects very much as the concepts of academic disciplines are taught. That is to say, the concepts are either verbally defined, or the student is left to garner the meaning from the context of the discourse. The definitions are frequently loose, lacking the sharpness that distinguishes the concepts from other concepts with which they are easily confused. For example, it is difficult to find clear-cut distinctions between reinforcement and feedback either in the research literature or textbooks. Consequently, it is not unusual to find teachers who are unable to distinguish verbally the two concepts, not to mention the ability to recognize them in behavior. Even when behavioral definitions are given, the behavior is simply described. The student is thus more often than not unable to recognize the classroom behavior that corresponds to the description. Although this matter has not been thoroughly studied, there is good reason to assume that the failure of teachers to use pedagogical terminology is related to their inability to identify the behavior corresponding to the terms.

One of the most thoroughgoing efforts to remedy this defect in the training of school personnel was the development of protocol materials. These consisted of films and videotapes to exemplify specified pedagogical concepts. These films or videotapes are used to train school personnel and prospective teachers to recognize and identify the classroom behaviors that correspond to the definition of concepts. Student manuals and instructor guides are provided for the film or videotape. The research evidence on this approach to the teaching of concepts indicates that it is effective.[11]

When the concept is exemplified as a skill, the amount of practice necessary to acquire the skill once the trainee can identify it behaviorally is reduced almost to zero. This appears to be especially the case where elements of the skill are already in the repertoire of the trainee and can be readily organized into a pattern of behavior.

While skills can be developed through the use of protocol materials, there are other procedures and techniques for doing so. Among the more effective of these is the minicourse which incorporates the principles of microteaching and the use of films to exemplify the teaching behavior to be acquired. Protocol materials and minicourses are similar in the sense that they emphasize the exemplification of concepts and teaching behaviors. Protocol materials, however, place greater stress upon skills of observation and concept acquisition, whereas minicourses emphasize acquisition of particular teaching behaviors.[12] These are complementary materials, each contributing to the other's effectiveness in a program that emphasizes both conceptual knowledge and know-how.

While it is not possible here to present all the procedures, techniques, and materials that have been developed to train teachers, it is useful to call attention to one of the most comprehensive surveys of training materials to be found in the literature. This is the catalog of teacher training materials, designed to develop teaching skills in various subject areas and at various grade levels, developed at Stanford University. It describes more than 800 products. The following classification of these products indicates their scope and general character.

"1. The product's subject matter specificity. (Did it apply to the teaching of English, mathematics, science, social studies, or school subjects in general?)
2. The target audience. (Was the product intended for preservice trainee, inservice teachers, or what?)

3. The grade level specificity. (Was the teaching skill pertinent to early childhood education, to the high school level, to something in between, or to all levels?)
4. The so-called target outcome. (Which aspect of teaching—such as planning, presentation, interaction with pupils, attitude toward teaching, or teacher's self-concept—was the product concerned with?)
5. The target outcomes for students. (Which of various kinds of cognitive and social-emotional outcomes?)
6. The training situation. (What materials were provided with the product and what materials and equipment had to be provided by the user?)
7. The time and number of persons required to administer training with the product. (How many trainees could use the product at one time?)
8. The kind of practice provided. (Was it paper-hand-penciled exercises, or classifying incidents in a film, or playing a simulated teaching game, or teaching actual students?)
9. The phase of teaching in which the acquired skills would be used. (Did the training apply to the teacher's work before, during, or after interaction with the student?)"[13]

In the development of a training program it is necessary to screen materials discussed in the foregoing paragraph to be sure that they are based upon adequate empirical evidence as to the effectiveness of the skills they purport to develop as well as to their effectiveness in the actual training of teachers.

These kinds of materials are useful in laboratory work carried on in connection with formal courses such as those set forth in Chapter 5. They of course cannot take the place of actual experience in the classroom, but their utilization in laboratory situations can prepare the teacher for successful experience in the classroom and in subsequent employment. Such materials have advantages over on-hands experience in the classroom in that, in the initial phases of training, it is desirable for the trainee to study the same behavior over and over again. Protocol and minicourse materials make this possible. Classroom behavior perishes as it happens and consequently cannot be observed a second time. For a trainee to gain maximally from observation of, and performance in, actual classroom situations, it is necessary that he or she be well-disciplined in the skills of observation and classroom performance as developed in laboratories.

Summary

We have identified and clarified the primary target of pedagogical education and set forth the areas in which training should be concentrated. If the faculty of a pedagogical institution is in thorough command of its knowledge base and of its priorities, it will not be prone to run off in new and often irrelevant directions with each new pressure that outside organizations and agencies bring to bear upon it. When the faculty of pedagogy does not know what it is about, it grabs any and every newfangled idea and purpose that any organization or agency offers, suggests, or insists upon. It will take on the task of providing courses, workshops, or any other device for meeting such demands as the call for urban education, sex education, drug education, or human relations education, even though the faculty is already falling far short of performing the task it was created to do: to train teachers in the knowledge and skills of classroom work.

Chapter 9

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Chapter 10

A Profile of Generic Knowledge for Pedagogical Training

Chapters 7 and 8 set forth the types and uses of both clinical and academic pedagogical knowledge. Three propositions were elaborated. First, empirical condition-consequence statements represent practical classroom knowledge, where variables of teaching behavior are the conditions, and variables of student achievement, attitudes, or conduct are the consequences. These statements were called clinical pedagogical knowledge. Second, academic pedagogical knowledge, although containing conditional statements, seldom yields teaching prescriptions. However, such knowledge is particularly useful in making policies and decisions when it consists of social, economic, or psychosocial correlates of success and failure variables of students in school and community life. Third, theory has value in the art of teaching only if "theory" is used to mean empirical clinical knowledge. Since this form of knowledge is not called theory in either pedagogy or other sciences, the appeal to theory as practical knowledge in classroom teaching is bootless.

Finally, we noted in chapter 9 that program development which begins with objectives where the knowledge has not been assembled, sifted, and systematized either wallows in controversy or relapses into barren repetition resulting in varying degrees of disappointment and frustration. As an alternative, we suggested that we first assemble and organize the knowledge accumulated from almost a century of research, and from that knowledge derive objectives and programs, revising them as further research, program evaluation, and experience indicate.

The purpose of this chapter is to suggest a schema for collecting and organizing generic clinical knowledge, to sample this knowledge, and to explore further the role of clinical knowledge in developing a training program.

Prerequisites of Program Development

In an empirically based profession, whose research has not been assembled and sifted, certain steps are prerequisite to program development, as follows:

1. The research must be assembled and classified with reference to various components of professional work.
2. The knowledge-yield of research must be classified by types, particularly definitions and principles.
3. Definitional knowledge must be analyzed as to its clarity and the directness of its referents.
4. Both independent and dependent variables of condition-consequence knowledge (principles) must be treated as in 3 above.
5. For generic knowledge, both definitions and condition-consequence statements must be classified by domains of training; and for content-specific knowledge by levels of schooling and content areas as well.

When these steps have been completed an effective program of pedagogical education can be developed; one built upon knowledge that provides enough detailed information at the behavioral and manipulatory level for training to be direct, controllable, and challenging to both trainees and instructional staff.

The failure to assemble the knowledge and then reduce it to an observable and manipulatory level partly explains the miscarriage of previous efforts to design and institutionalize an effective program of pedagogical education. To design a program by beginning with objectives or outcomes before knowing what the research of the last 75 years says in concrete terms is to provide ends without means.

Research is now our chief source of knowledge. However, except for a few quality textbooks, the vast amount of research of the last 75 years is almost in complete disarray when considered with reference to the systematization needed for program development in pedagogical education. Of course, encyclopedias of research, handbooks of research on teaching, and reviews of research are available, but these summaries are not oriented toward program development. From the information they contain, even when the knowledge is relevant, it is difficult to decide what grade level, subject, or domain of training it belongs to.

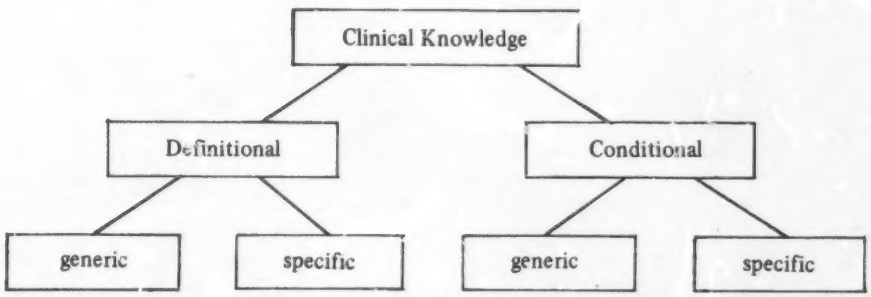
Moreover, research knowledge is so loosely organized that researchers themselves have been shown to do over again, perhaps unwittingly and somewhat differently, studies made by others. For example, there is a recrudescence of research on adult learning, telling us over again much of what E. L. Thorndike discovered over 50 years ago—that an old dog can learn new tricks and that intellectual deterioration with age is much less than popular opinion had supposed.

Early research on teaching usually defined the variables as static characteristics—personality traits, academic achievement, years of experience, and so on—instead of dynamic variables, a practice continued by Coleman in his study of educational inequality. Beginning in the late 40's and early 50's a new emphasis crept into research—teacher behavior became the object of study together with its effects on student behavior and achievement. This approach is now beginning to yield dependable knowledge of teacher effectiveness. It is to this research that we go primarily for much of the knowledge referred to in this chapter.

Generic and Specific Clinical Knowledge

We have mentioned various types of clinical knowledge: definitional, conditional, generic, and specific. How these are related is depicted in diagram 5:

Diagram 5. Types of Clinical Knowledge



Definitional and conditional knowledge were distinguished in Chapter 7. We must now consider the distinction between generic and specific knowledge. The essential feature of specific clinical knowledge is that it suggests skills that are effective only in teaching a particular kind of instructional content. But the expression "kind of instructional content" is ambiguous. What is to be counted as a kind? Is it the content of a particular discipline or area of knowledge such as physics or language arts? Or is it logical types of content such as definitions, principles, and particulars?

Content identified with a field is exemplified by the teacher's knowledge of manuscript writing and the pedagogical principle pertaining to it is as follows: If a teacher uses manuscript writing when teaching young children, achievement in writing and reading will be more assured than if handwriting is used. This principle tells how to teach particular abilities at a particular level of school-

ing. It is content-specific as to the language-arts area.

A definition (concept) is an example of a logical type of content, a kind of content found in most disciplines or areas of knowledge. If a teacher uses rules (some form of definition) and instances in teaching concepts, students are more likely to acquire them than if other practices are followed. This principle tells how to teach a particular kind of knowledge, in this case definitional, regardless of the discipline to which it belongs or the level of schooling at which the teaching takes place. Although the principle is content-specific, as to concepts, we count it as generic because it is applicable to all subjects containing concepts and to all levels of schooling. We shall use the expression "content-specific" to refer to those principles that pertain to a particular discipline or area of the curriculum, and "generic" to refer to principles of more general application.

However, a caveat is in order. Some principles appear to be grade-specific rather than content-specific and others appear to be both grade and content bound. We have not concerned ourselves with this distinction. It is sometimes difficult to tell from the research whether the principle is content specific respecting a particular grade or a number of grades. We have, therefore, ignored this refinement in the present chapter as well as in chapter 11 where content-specific knowledge is treated.

Generic Definitional Knowledge and Skill of Observation

Anyone in pedagogical circles who insists upon clear definitions is likely to be counted as an advocate of unpopular causes. Definitions channel our thinking just as they provide the basis of sound reasoning. All of which can get in the way of brainstorming, a popular but not unrewarding activity. While freewheeling is to the good, there comes a time when the ideas thus turned up must be refined if they are to be useful. For clear definitions are not only essential in research but also in practice. As pointed out in an earlier chapter, they render clinical principles applicable and provide the basis for the development of observational skills.

The activities of the classroom are complex because of the density and rapidity of events. So many things happen at the same time and in such rapid sequence that only a highly trained observer can tell what is going on, and only then for some portion of the activities. Little wonder that to beginners everything in the classroom seems to happen at once. They have few concepts and no skills with which to analyze the flow of events and to sort out the significant from the insignificant. Even the experienced teacher, having had little training in observation, not infrequently makes unwise decisions because of inability either to see or to correctly classify events.

It is well-known that we observe with our concepts as well as with our senses. Definitional knowledge is therefore a guide to observation. Definitions have two dimensions—verbal and referential. If definitions are clear at the symbolic level and used consistently in discourse, they provide a necessary condition for rigorous thinking where thought moves from one proposition to another.

However, we can understand definitions in the verbal sense and still be unable to use them in the referential sense. That is to say, we may not know what the terms of a definition designate at the level of observation and manipulation even though we know what a definition says verbally. Suppose we define corrective feedback as any utterance, gesture, technique, or procedure that provides hints to help the student respond correctly after an incorrect response. Although this definition is verbally clear, the trainee may still not be able to identify the actual utterances, gestures, techniques, or procedures as the referents denoted by the definition.

The training procedure must be such as to discipline the student in the ability to identify the appropriate teacher behaviors. The complexity of this training task can be indicated by noting some different ways of giving feedback. For example, it can be given by an analysis of the student's oral response, explaining why the answer is incorrect or giving the correct answer; or by analyzing the student's written response, explaining why the answer is incorrect or giving the correct answer; or by probing questions to try to elicit the correct answer; or giving examples to clarify and help correct the student's response. Unless teachers are trained to do so they will not be able to identify corrective feedback even though they know the verbal definition. The training program must of course go on beyond the development of the ability to identify feedback behavior. It must make sure that the trainee can perform these behaviors also.

The importance of definitions in the diagnostic aspects of teaching is crucial, for in diagnosis we are required to observe student work performance objectively and to classify deficiencies correctly as a necessary condition of effective instruction.

The utility of definitions in pedagogical training is consistently neglected. Despite the fact that definitional knowledge is at the heart of pedagogical training, only one collection of such knowledge, although limited in scope, is available.[1] Even that study has been all but ignored. It provides a number of definitions pertaining to groups and individuals, classroom cognitive processes, and control of content in teaching. It also gives referents as well as verbal definitions of terms. The following examples from this collection exemplify the sort of definitional knowledge needed to develop programs of training.

Suppose it is desired that the trainee learn to recognize dependency behavior in the classroom. The term "dependency" must be defined not only verbally but also in terms of observable indicators that the trainee can be taught to identify in classroom situations. Here is an illustration.

Definition:

"Dependency is reliance on other persons and their actions for assistance and support."

Indicators:

1. "Continuous attempts to obtain assistance are symptomatic of dependency."
2. "Dependency is indicated by reluctance to take independent action."

Illustrations:

1. "Everyday it was the same. One could predict the pattern of activity after an assignment was given. Some of the students would begin working immediately. Most would ask additional questions and then begin to work. A few would demand constant help until they had finished. On occasion these demands for help would become irritating; however, attempts to reduce the behavior had resulted in failure."
2. "The next day after Mrs. Jones had attended the symposium on individualized instruction, she tried out a few of the ideas in her own classroom. A major obstacle soon appeared. Many students were unable or unwilling to work independently. So she went back to the old ways."

Now consider a definition that pertains to teacher behavior. The ability to hold students accountable is closely associated with teaching success. But how does a teacher, or even a professor of pedagogy, know when a teacher's behavior is of the kind that holds students accountable? The answer is foreshadowed in the following definition:

Definition:

"Accountability is a dimension of group focus that refers to the degree to which the teacher holds the pupils responsible for their task performance during recitation sessions."

Indicators:

1. "The teacher makes an effort to assess children's behavior and communicates to them her knowledge of it."
2. "The teacher requires pupils to demonstrate the skill or knowledge in question."
3. "The teacher may employ the accountability tactic in focusing upon one pupil or the entire class."

Illustrations:

1. "The teacher may require an individual student to recite alone during which the other pupils may or may not be attending. The recitation may be an arithmetic procedure, the rehearsal of memorized material, or the location of States on a map. As the pupil responds, the teacher attends to his or her progress, asks questions, praises correct responses, corrects mistakes, calls for repetition, etc. He is focusing upon that pupil and holding that pupil accountable."
2. "The teacher has several children working at the board on a set of problems. Children at their desks are working the same problems on paper. The teacher attends to the work at the board, and at the same time moves about among the seated children. From time to time she comments to members of both groups. At one point she stops and says, 'I think Tom is having some trouble with a real tough problem here. Let's all watch him at the board and see if we can help.' "

Definitions thus analyzed make it possible to develop training materials such as protocols[2] (con-

cept films) and to discipline students in the difficult art of observation.

Discipline in observation also requires that students learn to control their personal and social class prejudices as well as ideological preferences as observations are made. In other words, they must learn to observe with neutrality except for the technical concepts that guide observation. In a field where prejudices and value orientations play a heavy role, as in pedagogy, to learn to observe neutrally is a considerable achievement.

Since objective observation is the *sine qua non* of professional work, it must be considered as a primary domain of pedagogical training. It will need to be attended to throughout the period of professional preparation, although the program should doubtless give particular attention to it at the very outset. Perhaps observation of exceptional students should be the point to begin. If teachers in training can learn to observe exceptionality with detachment and neutrality just as they can observe the behavior of other students, they are well on the way to becoming disciplined observers.

Generic Conditional Clinical Knowledge

Generic clinical knowledge must be called from research studies, professional wisdom, and counseling practices and then classified by training domains and in some cases perhaps by levels of schooling. The following items, classified by training domains, are examples of generic knowledge. Although some of these items were derived from studies at the elementary level, management of pupils for example, there are good reasons to believe they will hold for all levels.

1. Diagnosis
   a) If teachers identify prekindergarten children with potential learning problems from genetic etiological factors and provide intervention, amelioration, preventative and/or remedial programs, they can avoid or reduce the long-term frustration, emotional consequences, and academic failure experienced often inappropriately labeled as obstreperous, lazy, ill-behaved, or mentally retarded.[3]

2. Planning
   a) If teachers study and plan materials to be taught in order to reduce vagueness of presentation, student achievement will increase. This is true when the teacher is the only source of information about a topic—as in a lecture on a special area.[4]
   b) If teachers plan a host of alternatives in light of their estimate of appropriateness of the alternatives for the student or group of students who are in particular "learning states" with respect to given objectives, then the utility of the teaching alternative will be maximized.[5]

3a. Management of Time, Space and Resources
   a) If teachers spend a large amount of time on academic activities, then student achievement on both low and high complexity tasks increases.[6]
   b) If teachers arrange the physical layout of the classroom to allow for whole class monitoring during small group instruction, then classroom disruptions will decrease and student learning will increase.[7]
   c) If teachers involve parents in educational programs, then they are utilizing the most important influence on the pupils' intellectual and emotional development, and they will increase the possibility of obtaining optimal results.[8]

3b. Management of Instruction
   a) If teachers direct classroom activities without giving students choices, approach the subject matter in a direct, business-like way, organize learning around questions they pose, and occupy the center of attention, then students show greater task orientation and greater gains in achievement, creativity, inquiry, writing ability, and self-esteem.[9]
   b) If teachers adjust the cognitive demands of their lessons to the level of students' capabilities, then student achievement increases.[10]
   c) If teachers make use of probing techniques in instruction, then students will make more inferences, and more accurate inferences concerning subject matter.[11]
   d) If teachers give complete instructions and demonstrations of new materials and

assignments, and check to see that the students do understand how to do the assignments before releasing them to work on their own, then students will show gains in achievement.[12]

3c. Management of student conduct

a) If a teacher gives a simple reprimand, saying in a matter-of-fact tone: "Don't do that again, please sit down in your seat now," and resumes the lesson, students will pay more attention to the lesson following the event and evaluate the teacher as fair and able to maintain order, in most classrooms.[13]

b) If teachers use desist techniques that communicate to the students, through teacher behavior, that they know what the students are doing, then student work involvement increases and disruptive behavior decreases.[14]

c) If teachers use contingency management principles of personal attention and social reinforcement to increase attending behavior of students, then students will increase study behavior and there will be gains in academic achievement and I.Q. scores.[15]

4. Communication

The literature of counseling and group deliberation is the source of our knowledge about face-to-face communication. It should be combed for principles essential for effective communication of teachers with students, parents, peers, and others. The following are examples of likely findings:

a) If teachers persistently ask "what" rather than "why" and do not accept "why" from the student, the student is more likely to feel responsible for his behavior.[16]

b) If the teacher persistently asks questions rather than makes statements—Is it worthwhile to learn to add and subtract? Is it worthwhile to take someone's book?—the student is more likely to engage in self-evaluation.[17]

c) If a teacher appears relaxed—voice, rate of speech, facial expressions, etc.,—to a parent who comes to talk about his or her child, the parent is likely to feel more relaxed.[18]

5a. Evaluation of student achievement

If secondary teachers take the time and trouble to write comments (believed to be "encouraging") on student papers, then student performance improves significantly.[19]

5b. Evaluation of instructional program

If teachers provide a stimulating environment for culturally deprived children through special programs such as Head Start, then children perform better on standardized tests immediately following their exposure. The fact that they lose their gains after several years in a regular classroom might indicate the need for a continuing special program.[20]

Knowledge as Basic to Training

Now that examples of generic knowledge, both definitional and conditional, are before us, it is time to emphasize certain aspects of this knowledge as they bear upon its utility in training. To emphasize an important point made in a previous chapter, attention is called again to the distinction between knowledge and skill. Knowledge is the accumulated definitions, principles, and other forms of information typically preserved and expressed in symbolic form. A skill is not knowledge, but rather behavior in which stimulus-response-feedback processes are highly organized with respect to an objective. It is not a habit in the sense of a fixed response, but acting so that subsequent responses are modifiable in the light of emerging conditions and the preceding responses.[21]

How are knowledge and skill related? Consider the following principle: If teachers hold students accountable for task performance during the lesson, behavior disruption decreases during the recitation. The teacher behavior referred to by the expression "hold students accountable or responsible" is the skill. Now, the behavior—what the teacher says or does and how it is said or done to hold students responsible—is not given in this particular principle. The original research defines or describes the behavior, otherwise the principle is worthless in a training program unless professional wisdom can supply the missing information about what the teacher does to hold students accountable. This is the chief reason why researchers must provide exact descriptions of teacher performance in

studies of teacher effectiveness if usefulness of their findings is to be assured in training programs.

Unfortunately, the utility of conditioned knowledge is often diminished by failure to provide descriptions of teacher performance. This is readily seen by reference to the forms of clinical knowledge found in research literature. Some principles are composed of two and some of three sets of variables, as follows:

1. A _____ C
2. A _____ B _____ C
3. B _____ C

Where *A* is the variables of teacher behavior; *B* is intervening variables, and *C* is the variables of student behavior—achievement, attitudes, conduct.

In the first case, the teacher behaves in a specified way and student effect is direct. Here is an example:

A	*C*
Teacher ignores student behavior by turning back on disruptive student, pays attention to desirably behaving student, or walks away from misbehaving student (where teacher attention is the reinforcer).	Student disruption ceases or diminishes.

In the second form, the teacher's behavior evokes an intervening set of behaviors which in turn results in the desired student conduct. The teacher's performance thus leads indirectly to the desired student behavior. An example is the following:

A	*B*	*C*
Teacher engages students in a variety of activities during a seatwork lesson.	Student work involvement increases.	Pupil deviancy decreases.

The third case is one in which the principle does not include teacher behavior. This is an example.

A	*B*	*C*
?	Students understand the lesson, according to their own rating of the lesson. (as shown by a research study).	Achievement gains in social studies correlate with their ratings .56 and .44.

Someone could ask whether it is expected that students will learn from presentations they do not understand. However, the crucial point is not that students are more likely to learn what they understand, but that the principle provides no teacher behavior. The intervening variable—student understanding—is given, but what the teacher does to induce understanding is absent. For purposes of training such principles are worthless.

Principles of this type occur all too often in professional wisdom and not infrequently in research studies. Wisdom as well as research tells us that motivated students learn, that good classroom atmosphere leads to good student conduct, and that students who apply themselves learn more than those who do not. But, as in these instances, prescriptions are not infrequently lacking.

Patterns of Classroom Operation

The skills, of which definitional and conditional knowledge are the verbal counterparts, are effective when they are orchestrated in the performance of teachers who are aware of what they are doing and where they are going.

It has long been recognized by students of pedagogy that teaching is a pattern of behavior and not just a set of desultory acts. Historically the pattern has been referred to as methods of teaching, frequently referred to now as management, and these correspond to two forms—didactics and heuristics.

Historically, one of the most influential formulations of didactics was Ziller's elaboration of Herbart's conception of teaching into five steps,[22] as follows:

1. Preparation. This phase prepares the students for reception of new ideas by calling up related ideas already known. This operation revives the apperceptive mass as a basis of further learning.
2. Presentation. This sets forth the new ideas of the lesson.
3. Association. In this step the new is actually combined with the old through imagination and reflection.
4. Generalization. In this step the general idea is separated from concrete particulars. It is a form of abstraction and occurs by reflection and expression through language.
5. Application. The learner applies the general idea. This helps to fix the learning and to provide further insight into what has been learned.

Another influential pattern of teaching, somewhat similar to Herbart's, was advanced by Morrison some fifty years ago. He called it direct teaching, by which he meant that objectives are understood, content directly related to objectives is selected, students are introduced to the new material after a pretest to determine what the students know already, assignments are made and the students kept on task and given corrective feedback when needed. His formula was: "Pre-test, teach, test the results, adapt procedures, teach and test again to the point of actual learning."[23] He said:

> Teaching which aims at the objective directly, records pupil performance, and then passes on is however only half direct teaching. The more essential half is found in the principle of corrective teaching, or the application of the testing and reteaching members of the mastery formula. Apart from corrective instruction, there is fundamentally no systematic teaching at all but only the administration of one form of intelligence test.[24]

Recently, direct teaching has been enjoying renewed attention because of research results that support systematic performance not essentially different from Morrison's conception. Essentially, direct teaching is now conceived as teaching in which objectives are understood by students, content directly related to objectives is used and is extensive, presentation or lesson development is specific and relatively short, questions pertain to the content and are at a low cognitive level, seatwork and home assignments are required, students are monitored and held accountable for assigned work, corrective feedback is provided, and the work is paced at an optimum level.[25]

It is evident from what has just been said that the pattern of didactic teaching has changed very little with time. Diagnosis, feedback, and objectives have become more pronounced since Herbart. But other components are essentially the same, although changes in pedagogical language may give the impression that wholly new energizing ideas have emerged. This is not to depreciate advances made in clinical knowledge and skills. If didactic teaching is a natural form of behavior, as we suggested earlier, its basic pattern should show little or no change over the years. What research can and is providing is the knowledge by which to identify and improve the skills that make didactic teaching more effective.

Heuristics and Its Knowledge Base

Heuristics, like didactics, is a natural form of teaching. Its point of departure is the students and their interests, active or potential, rather than the content of instruction. Its primary objective is to provide an experiential context for students to learn the skills of identifying and solving problems. As they engage in problem solving, students come into purposeful relationship with the knowledge relevant to the problem. It is claimed that they thereby acquire the concepts, principles, skills of thinking, attitudes, and so on that they need to deal with the problems of life.

Like didactics, the origins of the heuristic pattern are lost in antiquity. Its components have been identified from time to time and tagged with various labels. Perhaps the clearest description of this pattern, at least in the current century, is that of Kilpatrick, in which he proposed four operations: purposing, planning, execution of plan, and evaluation.[26] Each of these components is carried out by the students under the guidance, cooperation, and assistance of the teacher.

It will be readily recognized that these elements of the heuristic pattern are primarily the same as the elements of Dewey's complete act of thought; namely, felt needs, identification of the difficulty to be overcome in satisfying the needs, collection of data and formulation of a hypothesis or plan of action, elaboration of the hypothesis, and testing it either as a conclusion or as a course of action. There have been a number of other statements of the heuristic pattern since Kilpatrick's, but they consist essentially of the same ingredients.

Research bearing on the efficaciousness of heuristics in comparison to didactics leaves much to be desired. Nevertheless, it appears from recent research that students who are taught didactically are just as effective at problem solving and have just as good attitudes toward themselves and the school as students who are taught heuristically.[27] This should not be taken to mean that teachers should be given no training in heuristic skills. We do not yet know enough about the cognitive makeup of teachers and students, or the effects of different disciplines upon teaching behavior, to do anything other than to encourage further research on heuristics and to insist that teachers be prepared in heuristic as well as didactic skills.

Training in these different modes of teaching should be clearly separated. Students should know

when they are being trained in either heuristic or didactic skills and modes of management, and no attempt should be made to mingle the ideas of heuristics with those of didactics and vice versa. They should be kept separate. It may be that some of the problems teachers are now having with student conduct are attributable to the fact that programs of pedagogical education have for some time tended to assimilate these two modes of teaching, and, as a consequence, many teachers have entered the service of the schools without clearcut ideas and skills of management.

The problem of developing a program of training in heuristic skills is difficult because of the scarcity and poverty of research on the effectiveness of variations in heuristic performance from teacher to teacher.[23] Consequently, there is little research knowledge for heuristic training, forcing us to fall back upon craft knowledge to develop a training program. More specifically, we do not know the effectiveness of various teaching behaviors for helping students learn how to clarify their purposes or plan to realize them. Neither do we know what teaching behaviors are effective in working with students as they carry out their plans and evaluate the outcomes.

Summary

The domains of training constitute the categories of knowledge required for training in generic classroom skills. The task of program development can be carried out only if we have the knowledge appropriate to each of these categories. This knowledge is now sufficient to underwrite a program of professional preparation, a program that can guarantee a greater measure of work success than our pedagogical schools have heretofore provided. However, the knowledge base of professional training is only partly supplied by generic knowledge. The remainder must come from content-specific knowledge, to which we turn in the next chapter.

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Chapter 11

A Profile of Specific Knowledge For Pedagogical Training

We distinguished generic from specific knowledge in the preceding chapter, pointing out that teaching skills uniquely related to a particular instructional subject are said to be content-specific and its verbal counterpart to be content-specific knowledge.

Research on content-specific problems of teaching was among the early research developments along with studies of the relation of achievement to such contextual variables as class size, grouping, child interest, intelligence, and grade placement. Teaching behavior per se, although of sporadic interest, did not come into its own as an object of research until the early 1950's. Even then the problems of criteria, research design, and controversy over the relation of psychology to teaching dogged researchers almost until the 1970's. But since then marked progress has been made toward unraveling the generic variables of teaching behavior and their relation to the variables of achievement, attitudes, and conduct.

Although little progress was made in the study of generic variables prior to the 1950's, clinical knowledge of instruction in reading, arithmetic, grammar, and foreign language had become extensive by that time and has continued to accumulate. Research in the teaching of science, social sciences, music, art, and literature is far less impressive. It is worthy of note, however, that the body of clinical knowledge applicable to the elementary curriculum exceeds by far that actually used in training as opposed to verbal courses. It must be admitted, however, that the amount of research on the teaching of subjects at advanced levels is comparatively small.

Schema for Ordering Specific Knowledge

To classify content-specific knowledge the program dimensions to which the knowledge is relevant must first be identified. One dimension is the level of schooling such as preschool, primary, intermediate, and secondary. This dimension roughly represents the developmental gradient of students as well as their levels of knowledge. Specific instructional behavior differs somewhat from level to level, a fact recognized for centuries and now supported by research findings.

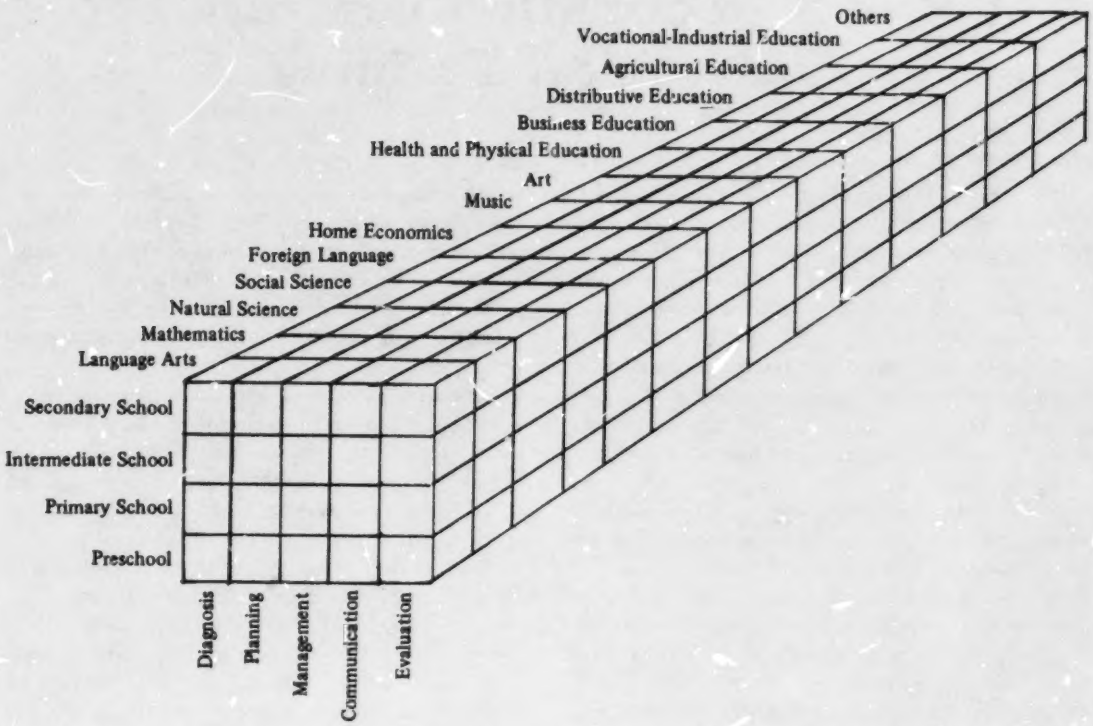
Another dimension is the subject matter of instruction. That the character of teaching differs in some important respects from one subject to another has been a constant theme of research and pedagogical education for most of this century.

The third dimension is the domains of training set forth in the preceding chapter. It is a mistake to consider the training of pedagogical personnel in these domains apart from clinical knowledge appropriate to them, for the knowledge tells us what skills to develop. For example, the knowledge used to decide the diagnostic skills to be taught is quite different from that used to decide the skills of instruction. If we know that manuscript writing (printing) is more effective than handwriting in teaching young children to write, we know thereby that teachers should acquire skill in manuscript writing and in identifying the difficulties children have as they try to form letters and words. The clinical knowledge required for skill development varies from one domain to another and in some cases from subject to subject and from level to level of schooling.

These three dimensions are represented in the diagram on the next page.

To fill in the cells from the research literature would require a team of individuals working throughout a considerable period of time. Even the task of giving examples of knowledge for each cell is too overwhelming to be undertaken under our restraints of time and resources. However, we can give a few illustrations of such items of knowledge to emphasize what must be done to develop an effective program of pedagogical training. The

Diagram 6. Master Schema for Specific Clinical Knowledge by Subject, School Levels, and Training Domains



following items are examples of the language arts cells for each domain and school level, except for levels where knowledge is not readily available and where the domains primarily include generic knowledge.

Diagnosis:

A. Preschool

a) If a child is having reading problems, the teacher should determine if he or she is confused about what it means to "read," that is, (1) understanding the communication purpose of written language, (2) conceptualizing the symbolic function of writing, (3) understanding the concepts of decoding and encoding, (4) learning the linguistic concepts, and (5) developing the corresponding technical terminology for such abstract units of language. The state of cognitive confusion about the purpose and nature of reading has a cumulative effect as the child advances to higher grades.[1]

Diagnosis:

B. Primary

a) If a child is having difficulty in making certain letters in manuscript writing, observe the child to see which of the basic strokes is not being properly performed.[2]

Diagnosis:

C. Intermediate.

a) If teachers want to assess the sight vocabulary problems of pupils, they should use words that are similar in their spelling patterns so children must look at the whole word rather than just its initial or final letter for identification.[3]

b) If teachers force children to create a sentence that is a logical or meaningful continuation of one they have read, it indicates understanding of the given sentence.[4]

Planning:

Research in this domain is just now getting underway. The knowledge generated by research is likely to be generic instead of content specific.

Management

A. Preschool.

a) Instruction.

If teachers require students to describe an object they request to use, language development is facilitated.[5]

b) Students.

Research on this aspect of management has resulted in considerable knowledge about the control of students, but the knowledge appears to be generic although it resulted from studies of the performance of elementary teachers.

Management:

B. Primary.

a) Instruction.

If the teacher of reading frequently provides for structured learning, achievement among low SES students will increase.[6]

If second-grade teachers follow a pattern of instruction which allows them to be accessible to pupils, work in small groups, and use a variety of materials, then students make higher gains on achievement.[7]

If a student is having sight vocabulary problems in reading, teachers can facilitate word recognition by teaching children to focus on spelling patterns.[8]

If teachers select words that have high associative connections, such as butter—bread; wet—rain; dog—bark . . . the student's skill in recognition of words in context improves.[9]

b) Students.

See generic knowledge.

Management:

C. Intermediate.

a) Instruction.

If teachers provide reading materials that are image evoking and easily visualized and not beyond the children's experiential background, comprehension improves. (Films, field trips, concrete objects, group activities, and pictures can prepare children for comprehension.)[10]

If teachers change the format of reading materials or their mode of presentation, reading comprehension is facilitated. For example, the use of phrase grouping of sentences helps the comprehension of poorer readers . . . . "The cat ran under the table." "The cat ran . . . under the table."[11]

b) Students.

See generic knowledge.

c) Resources.

If teachers select reading stories with good structure, student comprehension improves. (Structure includes characteristics of such story features as setting, theme, plot, and resolution.)[12]

Management.

D. Secondary.

a) Instruction.

If teachers provide sufficient definitions, details, and examples of concepts in social studies, reading comprehension improves.[13]

b) Students.

See generic knowledge.

c) Environment.

If teachers of adolescents with reading problems show acceptance and positive attitudes, disabled readers are less anxious and function at their best.[14]

d) Materials.

When teachers select textbooks and supplementary materials, the readability and range of levels of materials should be considered to determine the demands of the readers' tasks, whether comprehension will be enhanced or diminished.[15]

e) Resources.
If teachers provide for counseling to improve the self-concept of adolescents along with reading instruction, there is significantly greater improvement in reading achievement.[16]

Communication.

This domain contains only generic knowledge.

Evaluation.

This domain contains generic knowledge, although test items are typically content specific. When clinical pedagogical knowledge is assembled and assorted into the various cells of the schema, it may turn out that most content-specific knowledge pertains to diagnosis and instruction and very little to observation, planning, management, evaluation, and communication. Were this to be the case, it would have fundamental implications for program development. Work in the teaching of particular disciplines would then deal almost entirely with diagnosis and specific skills of instruction; that is, with how to identify obstacles to learning inherent in the content as well as those arising from what the student brings to the learning task, such as prior learnings, capacity, psychological and physical disfunctions; and also with how to help students with problems thus identified. This would entail study of the subject matter of instruction from quite a different standpoint. Treated in detail would be its hierarchical structure, where it exists; its logical forms; the logic and psychology of the elements of knowledge most difficult to learn; and modes of identifying learning difficulties in the spot.

The other domains of training—observation, planning, management, evaluation, and communication—would consist of generic knowledge, and these could be treated in that part of the program specially designed to teach the skills implied by generic principles.

Of course, all of this borders on speculation, for we cannot know how to organize a program of pedagogical training until we have assembled and classified the knowledge accumulated from research, craft experience, and counseling. Nevertheless, speculation of this sort at once presents the negative effects of the disarray of the knowledge base of pedagogy.

Summary

Attention should be called again to the distinction between generic and specific knowledge. The teacher must organize and control the classroom group as well as manage the general operations of instruction. The knowledge pertaining directly to these responsibilities is generic and the teacher behaviors that follow from such knowledge are generic skills. At the same time the teacher must teach the knowledge and skills comprising the curriculum. Some of the tasks of teaching are uniquely related to curriculum content, and the knowledge pertaining to these tasks and the skills they require are content-specific.

Admittedly, this distinction can be overdrawn, but, if used with caution, it can be a guide to separating the generic knowledge and skills that are now duplicated in special methods courses from the content-specific materials. This would not only eliminate much duplication but also enable the special courses to concentrate upon the pedagogical knowledge and skills peculiar to the particular subject matter.

Chapter 11

Because of limited resources and time we have found it necessary to rely heavily upon textbooks on the teaching of particular subjects. For no reason other than accessiblity to the authors, the following were used to direct us to references in which the various items are treated: Hallahan, Daniel P., and Kauffman, James M. *Introduction to Learning Disabilities: A Psycho-Behavioral Approach.* Englewood Cliffs, N. J.: Prentice Hall, 1976; Tinker, Miles A., and McCullough, Constance M. *Teaching Elementary Reading,* Englewood Cliffs, N. J.: Prentice-Hall, 1975; Rupley, William H., and Blair, Timothy R. *Reading Diagnosis and Remediation: A Primer for Classroom and Clinic.* Chicago: Rand McNally, 1979; Roe, Betty D., Stoodt, Barbara D., and Burns, Paul C. *Reading Instruction in the Secondary School.* Chicago: Rand McNally, 1978.

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PART THREE

How To Get There

- What changes are basic to improvement of pedagogical education?
- Do we move forward by changing individuals or by changing objective circumstances?
- What changes in objective conditions now favor improvements in pedagogical education?
- When are behavioral techniques of change likely to be effective?
- What can a college faculty do?
- The need for a coalition to effect new policies and programs of pedagogical education.

Chapter 12

Memo On the Problem of Getting There

In the preceding chapters we have presented what a professional school of pedagogy would look like, if in fact it existed; and we have given the outlines of knowledge for a program of pedagogical training and indicated how that knowledge can function in the training program. The remaining task is to suggest how such a school of pedagogy can be instituted.

There are two general ways of displacing one set of ideas, practices, and institutional structures by another. The first aims to make personal and institutional changes by changing individuals; the second by changing external circumstances. These can be grouped as follows:

1. Methods of changing institutions by changing individuals
   1.1. Conversion
   1.2. Rational procedures and techniques
   1.3. Behavior technologies
2. Methods of changing institutions by changing external circumstances
   2.1. Governmental action
   2.2. Circumstantial coercion

Institutional Change Via Individual Change

The underlying supposition of these methods is that changes in ideas, practices, and institutions can be induced by changing individuals per se. When enough individuals have been transformed, changes in practices and institutions can result. This view is rooted in the notion of social atomism, each individual being considered as a social atom and society as a collection of such atoms with social change occurring when a sufficient number move in the same direction. The good institution, and indeed the good society, is created by progressively developing good individuals, however defined.

The first, and most ancient of these methods, is religious conversion. Some unusual experience, associated with a source of power outside of and beyond the comprehension of the individual, induces a change in the individual's attitudes, beliefs, and hopes. Such experience may occur in the loneliness of a wilderness, in the heart of a desert, in the pews of a church, or on the crowded streets of a city. Regardless of the location, the individual is somehow transformed by a profound experience to a new orientation and a new way of life.

The power of conversion is not to be lightly dismissed as a mode of change. Witness the current rash of religious cults. Also, one has only to consider the rise of Christianity in ancient times, its spread throughout the world, its persistence over two thousand years, and its profound effect upon all social institutions to recognize the fundamental significance of conversion. It has been said that Christianity rode into the ancient world on the back of a downtrodden social class. This can hardly be denied, but without the phenomenon of conversion it would have gained neither enough followers nor enough support among the upper classes to have survived.

Another mode of change stems from the doctrine of the rational individual, the belief that people order their life by reason, that they can be persuaded to change their ideas, commitments and ways of behaving by argument and fact. This is the heart of the parliamentary system, which assumes that individuals will listen to reason and be persuaded by the power of logic and information. While the actions of a parliament often rest upon compromise—you scratch my back and I'll scratch yours—still the persuasiveness of logic and information is held to be the dominant force.

This is perhaps the reason why political participation is deemed to be educative and why so much emphasis has been placed upon skills of thinking as well as knowledge in educational programs. It is no accident that in those nations where the parliamentary mentality has dominated, the schools have been most vehement in insisting upon intellectual discipline of the young.

It is easy to see from this approach that changes in institutions are to be induced by the persuasive influence of logic and fact; that indeed the whole society can be improved if the educational system disciplines its students in the art of reasoning and in the procedures of gathering, organizing, and assessing information.

A third mode of change is derived from behavioral sciences. Building on the concepts and principles of psychology, sociology, and clinical procedures and techniques for changing individuals, a number of schemata have been devised for changing institutions. We shall briefly indicate some of the main features of three of these schemata.

The first is the social-influence schema which stresses the role of an agent or leader who is aware of the innovation.[1] The leader is likely to be a principal or someone in the administrative echelons whose role is legitimate. This leader induces others, department heads, and finally teachers, to become aware of the innovation and interested in it. As heads of departments and teachers become interested, they then look for evidence for and against the innovation. From the evidence, often testimony of those who have tried it, they decide either to try the innovation or to reject it. If they try it and it is successful, the tendency is to adopt it for further use. In this case, the innovation is introduced and its importance sustained by the influence of legitimized individuals until the evidence for and against the innovation can be examined, and the innovation tried out, should that be the decision after examining the evidence.

The second schema is the linkage approach.[2] The central feature of this schema is the linkage between sources of knowledge and the potential users of the knowledge. To do this requires interorganization and cooperation among institutions as well as institutional levels. For example, an elementary or high school may designate someone who is to serve as a mediator between the faculty of the school and an external individual who connects the school to the source of information. If the school is experiencing difficulties, the faculty and its mediator study the school situation and define the problem. The problem is then passed on to the linker who reviews it and, when it is in final form, conveys it to the source of information. The source of information is some individual or group who is aware of the research pertaining to the problem. The relevant research is digested and the appropriate information sent back through the same channel to the linker and thence to the school itself. The faculty of the school then uses the research information to work out a solution or to introduce such innovations as seem appropriate.

The linkage approach must necessarily reduce the friction of social interaction not only within the faculty itself but also between the various levels of the linkage system. It will consequently make use of various training devices to develop the personnel in skills of both social interaction and problem identification and definition.

A third schema emphasizes the concerns of individuals who are to be involved in the implementation of the innovation.[3] In this approach, a clear conception of the innovation is deemed to be one of the most important elements in the process of change. What is loosely referred to as innovation very often contains a number of changes, each of which is in itself an innovation. The failure to recognize this fact very often leads to overloading a school with changes to be made in a given time frame.

This approach plays up the importance of the concerns of individuals having to do with information about the innovation, how the change will affect them, how the use of their time will be changed, how their work will relate to that of others, and the effect of the change upon children. Attention to these concerns will require, among other things, techniques of identifying them, sources of information, human relations skills, and the ability to sense the situation as perceived by different individuals.

This mode of change also emphasizes levels of use, ranging all the way from no use at all to the point at which users are comfortable with the new practice and are able to reflect upon it in search of ways to improve it. This schema calls for a systematic plan whereby those who are trying to use the new set of practices are given appropriate assistance at every level of use. Without such assistance innovations are likely to abort.

These schemata have as their end-in-view changes in institutional practices and arrangements to be achieved by changing individuals. These modes may be, and quite often are, effective instruments of change within a particular institution. But where there are overlapping or interrelated systems such that what one institution does is dependent upon the policies and actions of other institutions, they are of secondary importance.

Colleges of pedagogy are characterized today by overlapping systems. These colleges typically are in a university system, meshed with colleges of liberal arts and sciences and other colleges at the undergraduate level and with the graduate school at advanced levels. Then, unlike other colleges in the university, they are meshed with State departments of education and the public schools. Overarching this total complex are State legislatures which today are increasingly taking over the functions of the boards of higher education and local educational authorities, laying down policies, curriculums, and increasingly assuming the responsibility for financing the schools as well as the universities. State educational agencies, too, are under legislative influence, functioning primarily as instruments to carry out the will of the legislature. Add to all this the increasing role of the Federal Government in education, and one begins to see how many bases must be touched in order to make any significant change in schools of pedagogy.

Changes in External Circumstances

Unlike the preceding schemata, the ones now to be considered are not concerned, at least not directly, with the problem of transforming the attitudes, ideas, and practices of individuals. Rather they aim to change directly the institutional structures within which individual activities are carried on. The collectivity is their target, not individuals. The basic supposition of these schemata is that if the circumstances under which people behave change, their behavior will change and new ideas and attitudes will thereby be induced. Consequently, the object of change is the circumstances affecting a collectivity, be it a total society or a specific group.

The most obvious schema of this genus is political revolt. This is not the place to discuss the anatomy of revolution. Suffice it to say that old institutions are swept away and new relationships established not only among individuals but also between individuals and all the new social, economic, and political arrangements. The dynamics of change are the military and police force under the direction of an ideology and a determined leadership.

After a revolution, the educational system undergoes extensive reconstruction—changes in the beliefs and practices of personnel, in aims and objectives, and in content of instruction as well as in the political control of the system.

While revolution is a drastic form of change, and one certainly not appropriate for the problems of pedagogical schools, consideration of it calls attention to the significance of the conception of democracy as institutionalized revolution. Not only does a democratic government respond to the needs of a people, free to express and to insist upon the importance of their needs, but it also changes institutions by legislation and court decisions backed up ultimately by the military and police force.

It is often said that beliefs and attitudes cannot be legislated. In a sense that is true, but in another sense it is false. It is true that personal dispositions are not directly changed by either legislative acts or judicial decisions. But these acts and decisions do change the surroundings in which people move, and these new conditions require new forms of behavior that ultimately change personal dispositions.

The strength of this approach is illustrated by the Supreme Court decision to desegregate the public schools. Intercultural education had been carried on in the schools for two decades and agitation for equal rights and equal educational opportunity had been a going concern for at least a generation before the 1954 decision of the U.S Supreme Court in the Brown-Topeka case. Yet little progress had been made toward equalizing opportunities for education before the Supreme Court decision mandated changes in objective circumstances. After that changes followed more rapidly, although not without resistance. As new rules and new conditions emerged and were sustained and expanded into community after community, ideas, attitudes, and behavior of individuals increasingly changed to accommodate the new conditions. Legislation for equal employment opporunity has had similar effects.

There can be little doubt that changes wrought in the public schools by State and Federal legislation and court decisions have had, and continue to have, far greater effects than all the dynamic schemata derived from behavioral sciences.

However, not all of these changes have been desirable, and the adverse conditions affecting pedagogical schools have remained untouched. Yet we continue to ignore the problem of how to inform State legislators about pedagogical education, how to present to them a clear and vivid picture of what it should be and what is required if pedagogical schools are to become effective institutions. When we do speak, we typically speak in divided voices

and out of our beliefs and convictions rather than our knowledge. It is not surprising that legislators often give the opinions of lay persons as much weight as those of professionals.

Circumstances rather than governmental action sometimes change pedagogical schools. Common knowledge tells us that whatever occurs in one part of society affects other parts. A case in point is the severe decline in birth rate. It is influencing society in general and schools in particular, producing a chain reaction in pedagogical institutions. The immediate effect is the reduction in the number of students who seek to become teachers. This loss of students threatens the tenure of faculty members and in consequence schools of pedagogy turn to inservice programs to sustain their faculties. As a result of all this, a large number of professors who heretofore conducted all of their work in campus classrooms are now working in the schools, an outcome of circumstantial coercion.

While there can be school improvements resulting from these efforts to help teachers, the major payoff from inservice is more likely to be a change in the beliefs and attitudes of professors of pedagogy with respect to what professional education should be about. The blind forces of history sometimes induce personal as well as institutional changes that have long been impervious to our best laid plans and strategies.

These observations have been made as an illustration of the effect that a change in circumstances can have on beliefs and skills. Reduction in the number of undergraduate pedagogical students and the resultant movement of college faculties into the schools can lay the groundwork for the clinical program required by a genuine professional school of pedagogy. What is needed, as suggested later, is leadership by college administrators, building upon the experience and opportunities provided by the educative impact of inservice activities.

Pro and Con of the Modes of Change

The disadvantage of the external method of transformation lies in the fact that it changes objective circumstances without immediately inducing modifications in the orientation and behavior of individuals. The disposition of individuals, not being immediately transformed, are thus in conflict with the new state of affairs. As a result, the resistance of individuals is likely to be persistent and destructive of the outward social changes. This conflict sometimes leads to the use of force by those who oppose the changes and retaliation by those who brought it about. This is a source of violence according to some theories of objective change.

The individual approach is not altogether satisfactory either. Since it depends upon changes in persons rather than circumstances, there is always a question of how many individuals must be thus transformed before changes in institutional arrangements can be made. According to one view, a majority must be transformed, or, at least, a number sufficient to threaten the entrenched ideas and practices to the point that compromises can be made in the interest of a new state of affairs. In any event, the course of change is long and tedious and is easily reversed when those whose views and ideas have been transformed are again in their old surroundings.

It is apparent from this analysis that any change in institutional structures as well as in personal adjustments is likely to be effective only if both individual and collective methods are used. There is an apparent contradiction here in the suggestion that both approaches be followed at once. The collective method is not likely to be used unless some individuals are first committed to it, and the individual method is likely to fail unless supported institutionally. The problem is insoluble at an abstract level, but at the level of practice these approaches can be made to work harmoniously in the production of institutional and individual changes. In fact, even in a wholesale political revolution, a program of propanganda and education is carried along side by side with coerced changes in institutions themselves. The same thing is true in small-scale changes such as those decreed by courts or by legislation. In the long run, coerced changes which are not accompanied by transformation of individuals ultimately lose their momentum and suffer reversal.

Factors to Be Changed

Turning now to the question of how to induce and sustain changes necessary to inaugurate a genuine program of professional preparation of school personnel, it should be borne in mind that what we say is offered as an approximation to what is possi-

ble in practical circumstances. There are many detailed problems which can not be foreseen apart from actual conditions. There are special problems of individuals which must be dealt with as though they were isolated even though they may be embedded in a set of interrelationships. There are general policies that apply to the broad institutional context and which at best can only be modified to approximate the particular needs of the professional school. The way in which a university is organized, the financial policies, and the pecking order of various departments and schools—all of these and many others will affect the efforts to change a school of pedagogy.

Any attempt to change the present academically oriented program into a clinical program is more likely to be successful if changes in objective circumstances and the corresponding personal adjustments compatible with the new circumstances are identified.

Among the external circumstances to be realized are the following:[4]

1. The State support of pedagogical schools should be based on program needs rather than on the number of full-time students.
2. State recognition and financial support of the public schools as a training laboratory.
3. Accreditation system that makes a clinical program at a postbaccalaureate level a necessary condition.
4. A statewide system of rigorous examinations on clinical and academic knowledge and on the subject matter of instruction.
5. The pedagogical program, except programs leading to the Doctor of Philosophy degree, must be insulated from the influence of the graduate school or from graduate requirements for degrees in universities where no graduate school exists.

Among the internal changes to be made are the following:

1. Command of clinical knowledge and skills and the ability to train prospective teachers in these.
2. Relationships with the public schools and their faculties must be improved.
3. Changes in beliefs about pedagogical education.

External Circumstances and How to Achieve Them

It hardly need be said that program financing is an indispensable condition for the development of effective pedagogical schools. Without it a clinical program is impossible, for clinical work accompanying courses in academic pedagogy requires at most a ratio of 10 students per instructor. Furthermore, clinical instructors in the public school classrooms must be members of the college faculty and paid at the same rate as their college peers. All of this will add to the cost of pedagogical education, making it impossible to carry on clinical work without a new formula for financial support.

Moreover, the number of schools offering programs in pedagogical education must be radically reduced. Many of them have neither the resources nor the staff to meet the requirements of existing programs let alone an effective clinical program. In some of them, work in pedagogy is offered to attract students to maintain the institution. By moving pedagogy to the postbaccalaureate level, work in pedagogy in strictly undergraduate schools will be eliminated. But this should not reduce their enrollments, for these schools can still provide the preprofessional programs for admission to pedagogical schools.

Nevertheless, many schools which do not now provide master's work will try to do so if pedagogy is made an advanced study. To preclude this is to establish an accrediting policy that makes a thoroughgoing clinical program essential for accreditation. In addition, there must be a statewide examination system comparable to that provided for professions such as accounting, medicine, and law. The examination should be grounded in clinical and academic knowledge and in the subject matter of instruction.

Finally, schools of pedagogy must be freed of the entanglements of graduate requirements. While these requirements are more stringent at the doctoral than at the master's level, they must be cut away at all levels except for the research degree. Pedagogical competence is neither developed nor manifested in meeting graduate requirements.

The foregoing conditions cannot be brought about by the procedures and techniques derived from behavioral sciences. They are too limited in

scope, and lean too heavily on changes in individuals, to affect the political forces that shape the external circumstances now constraining pedagogical schools. Neither can these conditions be instituted by colleges of pedagogy. These colleges are competitive with respect to enrollments and prestige and are unlikely to agree on either objectives or strategies. In addition, they lack, individually or collectively, the political leverage for shaping legislative opinion and action.

How then can the conditions set forth above be realized? There are at least two approaches. The first, at a State level, entails the formation of a council of prestigious citizens to study and make recommendations to the State legislature. The council should consist of leaders of various professions, bankers, housewives, business executives, labor leaders, minority leaders, and perhaps others. It would be charged with the task of working out a plan for a professional school of pedagogy at the university level. The plan would cover such questions as autonomy of the school, financial formulas, and the role of public schools and of the State department of education. The council should be adequately staffed, and its recommendations should be expressed not only in common discourse but also in model laws for legislative consideration.

How to legitimize the council is a fundamental question. Should it be created and financed by the State government? Should it be an independent body financed by a philanthropic foundation? Of course, the merits of these alternatives should be explored. But the prior question is how either one is to be initiated and by whom. All this boils down to the question of leadership. Without it nothing will happen and pedagogical schools will continue to be shaped increasingly by State departments of education acting as the agent of the State legislature.

An alternative, and perhaps the only alternative, is for two or more pedagogical deans to take the initiative and set an example for deans of pedagogy in States throughout the Nation. They must have thorough command of an extensive scenario of what a professional school of pedagogy can and should do and what is needed to do it. If they are not clear about the direction and shape of the goals, there is little likelihood that they can excite anyone to follow their lead. They must take the message to civic clubs, labor unions, women's organizations, minority organizations, and in fact to all organized groups that have a stake in education. Out of such a campaign to awaken the public, a council of citizens can emerge either as an independent or a governmental group, as experience of the campaign indicates.

If efforts to change external conditions at the State level were augmented by similar work of a national council, the chances of success would be greatly increased. Leadership for the creation of such a council rests with the leadership of the American Association of Colleges for Teacher Education. Its institutional membership and its Bicentennial Report on the education of the profession make it an ideal agency to advance the cause of pedagogical institutions. Were this organization to commit itself to the task of creating a council to study the status and needs of pedagogical schools and to securing foundation funds to support it, thereby making the council an independent body, a group of nationally prominent citizens could be induced to serve. There is widespread public concern about the schools, but few citizens of national stature have ever given a thought to the pedagogical institutions that produce teachers. The Bicentennial Report lies fallow, ignored by the media, by State legislatures, and even by the schools of pedagogy. A national council that builds on this Report and establishes communication with the Education Commission of the States could go a long way toward rebuilding pedagogical education in our time.

Partial Agenda for a College

What can a college do by itself? The answer depends upon the leadership of the college and the quality of its faculty. In many institutions practically nothing can or will be done. In some cases, the college has neither the resources nor the leadership to move off dead center. In others the commitment to graduate study is so thoroughly entrenched that to change to a clinical orientation is simply out of the question. Fortunately there are some schools with enough resources and faculty flexibility to respond to leadership committed to a clinical program.

These schools can do a number of things: they can develop a clinical orientation and commitment, they can establish some of the components of a clinical complex for the training of personnel, and they can build a common point of view about

the character and purposes of a professional school. It is to these tasks that the procedures and techniques for modifying individual outlooks and behaviors are most appropriate. It is here that faculty workshops, seminars, and departmental meetings for consideration of issues can be most effective.

Policies of promotion in rank and pay can be shaped to reward those who are effective in clinical work no less than those who are successful as research workers. In many institutions this change has already been made but without defining the sort of evidence required for sound judgments about the effectiveness of instructors in clinical work. There is reason to believe that a large proportion of the faculty of most institutions is teaching clinical courses such as special methods, student teaching, and educational psychology with little, if any, knowledge about research on teaching and teacher effectiveness. Many faculty members, especially those in educational psychology and other "foundation" courses, eschew research and are more interested in hearing about its methodological flaws than in utilizing its findings in the training of school personnel. They unwittingly assume that personal experience and abstract formulations about teaching by so-called theorists are superior to the imperfect knowledge gained from research, and continue to think that research should produce empirical propositions for which there are no exceptions and no exclusions.

A policy on rank and pay must reward those who are familiar with research on teaching and other aspects of pedagogy related to teaching. In addition, it must require that those who are familiar with research also show evidence that they use it as they train prospective teachers and that they require their trainees to master the knowledge at both verbal and behavioral levels.

Some will ask what evidence can be adduced to justify judgments about a faculty member's use of research. This is a question that will need to be given considerable attention, but it seems reasonable to suppose that faculty members can submit their syllabi, examination questions and sample answers, and other means used to assess their students as evidence that they are acquainted with the relevant research and use it. It cannot be too strongly urged that a college faculty that plays down the quality of research in pedagogy and refuses or fails to use research in the training of school personnel is undermining its own legitimacy.

In many instances the relationships between the public schools and the schools of pedagogy are at a low ebb, especially with respect to participation of the schools in the training of prospective teachers. Attention was called to this fact in Chapter 3. Fortunately, the relationship has seldom deteriorated to the point that restoration of cooperation is impossible. But if the relationship is to be put on a sound footing, the school of pedagogy must take the initiative and provide for public school teachers and administrators to participate in the shaping of policies and programs of training, particularly those components in which the schools are to participate. Although schools of pedagogy are restricted in their ability to compensate teachers for their work, the college can nevertheless allow college credit in addition to paltry stipends. The faculty can also work with clinical teachers as they jointly learn how to train prospective teachers and to evaluate their growth. Surely a faculty with strong leadership can go a long way, even with their destitute resources, toward creating a clinical complex involving local school authorities, teachers, and the public.

Summation

If, as pedagogical educators, we can get over our hangup with graduate study; if we can end our love affair with ideologies and put them in proper perspective; if we can think of teaching as a noble profession and exalt teachers and the schools rather than treat them as objects of wholesale criticism; if we can provide practitioners with workable procedures, techniques, and materials rather than with grandiose formulas for the correction of all educational ills; if we can end our preoccupation with how we are perceived in the academic community and turn our attention to how we perceive ourselves; if we can shed our masochistic attitudes and think positively about the schools, their personnel, and what a proper and adequate program of education for such personnel should be; if we can respect our own sources of empirical knowledge; if we can muster our courage to take the plight of pedagogical schools to the public with a firm conviction of what we must have to provide high quality personnel—yes, if we can do these things, there is hope that genuine professional schools of pedagogy can become a reality.

Chapter 12

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Name Index

A

Abraham, E.C., 99
Allen, D.W., 88
Anderson, C., 105
Anderson, D.W., 105
Anderson, L.F., 105
Anderson, R.C., 105
Axtelle, G., 78

B

Bagley, W.C., 36
Beckerman, T., 68, 98
Belgard, M., 98
Bellack, A.A., 98
Benne, K.D., 78
Berelson, B., 68, 78
Berkow, R., 57
Berliner, D.C., 47, 68, 88, 98, 99
Bezdek, W.E., 98
Biddle, B., 98, 99
Birnbaum, M., 78
Blair, T.R., 105
Bloom, B.S., 98
Blyler, D.M., 30
Bobrow, S.A., 105
Borg, J., 97
Borg, W.R., 88, 97, 98
Bower, G.H., 105
Boyan, N.J., 88
Brassell, W., 99
Brink, W.G., 30
Brophy, J.E., 98, 99
Budoff, M., 98
Burns, P.C., 105

C

Cahen, L.S., 98, 99
Caliver, A., 8
Carlson, R.O., 114
Carter, T., 99
Charters, W.W., 8
Clemmens, R.L., 97
Cohen, M.R., 68
Coleman, J.S., 90
Colosimo, J., 99
Colvin, R.W., 98
Conant, J.B., 8
Cooley, W., 98
Cooper, J.M., 88
Copeland, W.D., 88
Corrigan, D.C., 8
Cottrell, D.P., 88
Crile, G.W., 18
Cromer, W., 105

D

Darwin, C., 70
Davis, A., 98
Dempsey, N., 50, 57
Denemark, G.W., 8
Dewey, J., 66, 70, 73, 75, 78, 96
Dishaw, M.M., 98, 99
Downing, J., 105
Doyle, P.H., 98
Doyle, W., 50, 57, 88
Duffy, J., 8, 57
Duke, D.L., 99
Dunkin, M., 98, 99

E

Edwards, R., 12
Elliot, C.W., 37
Engel, G.L., 78
Evenden, E.S., 8
Evertson, C.M., 98, 99

F

Farber, J., 105
Fenstermacher, G.D., quoted, 52-53; 57
Filby, N.N., 98, 99
Fisher, C.W., 98, 99
Fisher, G., 97
Flexner, A., 2
Fortune, J.C., 88
Fox, S., 88
Friebel, A., 88

G

Gage, N.L., 50; quoted, 51; 57, 88, 98
Gartner, A., 15
Gibson, E., 105
Glaser, K., 97, 98, 99
Glass, G., 50
Gliessman, D., 88
Goldberg, S.R., 105
Good, T., 68, 98
Goodman, K.S., 105
Gordon, I.J., 98
Gottlieb, J., 98
Gump, P., 98
Guthrie, J.T., 105

H

Hake, J.M., 105
Hall, G.E., 8, 114
Hallahan, D.P., 105
Hallgren, B., 97
Halsted, W.J., 18
Hart, B.M., 105
Havelock, R.G., 114
Hawes, R.M., 99
Heath, R.W., 50, 57
Hellmuth, J., 99
Herbart, J.F., 95, 96
Hess, R., 98
Hidde, J.L., 105
Hiller, J.H., 97
Hoffman, A., 99
Howsam, R.B., 8
Huber, J., 88
Hudgins, B.B., 97
Hull, C., 72

J

Jackson, P.W., 68
Jones, H.L., 8
Joyce, B., 88

K

Kaess, W., 97
Kagan, J., 98
Kailenbach, W., 88
Kaplan, L., 30
Karlin, R., 105
Kaskowitz, D., 98
Kauffman, J.M., 105
Keen, W., 18
Kelley, M.L., 88
Kendall, A.J., 98
Kilpatrick, W.H., 96, 99
Kleucker, J.C., 88
Kounin, J., 98, 99
Kulhavy, R.W., 105

L

LaDue, D., 88
Land, M.L., 88
Langer, P., 88
Lawrence, D., 105

Lee, J.R., 105
Leinhardt, G., 98
Levin, J.R., 105
Lindsey, M., 88

M

Malthus, T.R., 71
Mannheim, K., 78
Marliave, R., 98, 99
McCollum, R., 88
McCondless, B., 99
McCullough, C.M., 105
McDill, E.L., 99
McDill, M.S., 99
McDonald, F.I., 88, 105
Mead, G.H., 81, 88
Medley, D.M., quoted, 51; 57; quoted, 83; 88, 98, 99
Melton, A., 99
Meredith, G., 88
Metcalf, L.E., 68
Monroe, W.S., 15, 49, 57
Moore, G.E., 73, 78
Moore, J.E., 98, 99
Morris, M., 88
Morrison, H.C., 74, 78, 96, 99
Moss, H.A., 98

N

Nagel, E., 68
Nash, R.J., 8
Nelson, M.A., 99
Nielson, M.A., 50, 57

O

Orlosky, D.E., 97
Osler, W., 56

P

Page, E.B., 99
Pangborn, J.M., 15
Perry, F.L., 88
Persons, S., 99
Peterson, P.L., 68, 88, 99
Pietrofesa, J.J., 99
Pinto, D.V., 99
Pugh, R.C., 88

R

Ratcliffe, R.H., 105
Raup, R.B., 78
Ream, M.A., 8
Rentel, V.M., 88
Reynolds, W.W., Jr., 99
Rice, J.M., 49, 55
Risley, T.R., 105
Roe, B.D., 105
Rollins, H., 99
Rosenberg, L., 98
Rosenshine, B., 68, 98
Rosner, B., 8
Ruddell, R., 105
Ruediger, W.C., 99
Rugg, E.U., 8
Rupley, W.H., 105
Ryle, G., 88

S

Samuels, S.J., 105
Schalock, D., 47
Sell, R.G., 88
Serafica, F.C., 105
Shavelson, R., 50, 57, 98
Shepala, S., 105
Sigel, J.E., 105
Singer, H., 105
Skinner, B.F., 72, 80
Smith, A., 64
Smith, E.O., 8, 47, 78, 97
Smith, L.R., 88
Soar, R.S., 98, 105
Solomon, D., 98
Splete, H.H., 99
Sprehe, J.T., 99
Stallings, J.A., 98
Steiner, G.A., 68, 78
Stephens, J.M., 50, 57
Stiles, L.S., 30
Stone, D.R., 88
Stoodt, B.D., 105
Sumner, W.G., 23

T

Thompson, M., 99
Thorndike, E.L., 72, 80, 90
Tinker, M.A., 105
Tolman, E.C., 72
Torrance, E.P., 98
Tucker, K., 99
Tykociner, J.T., 32-33, 38

U

Urmson, J.O., 68

V

Vernon, M.D., 105

W

Walberg, H.J., 68, 88, 99
Wallen, N.E., 98
Walsh, W.M., 99
Ward, B.E., 88
Washburn, C., 6, 82
Weil, M., 88
Westbury, I.D., 98
White, S.H., 99
Wilson, J., 88
Wilson, John, 68, 78

Z

Zaffiro, E.M., 98
Zidonis, F., 88
Ziller, T., 95

Subject Index

Academic pedagogical knowledge, definition of, 64; distinguished from clinical, 64-65; sources of, 65; utility of, 75-77

Academic pedagogical studies, justified as theoretical, 70; types of, 69-70

Academic preparation of teachers, criticism of, 31-32; elective courses in, 37; functions of knowledge in, 33; in teaching field, 34-37; complementary studies in, 32-37

Admission, contingent on training facilities, 39; need for ritual in, 39-40; purpose of policy in, 40; to doctoral programs, 20; to pedagogical school, 19, 39-40

American Association of Colleges for Teacher Education, Bicentennial Commission on Education for the Profession of Teaching, 3, 12, 112; report on teacher education, 2-3

American Council on Education, report of Commission on Teacher Education, 1

Ball State University, 2

Brown-Topeka case, as example of external approach to educational change, 109

Change, College of Education, agenda of, 112-113; different methods, advantages of, 110; external methods of, 109-110; institutional factors, in need of, 110-111; rational method of, 107; technological modes of, 108-109

Clinical complex, definition of, 24; governance of, 24

Clinical facilities, community as laboratory, 23; criticisms of, 22; early types of, 22; for doctoral programs, 21; role of public schools in, 21-22; training laboratory, 24

Clinical instruction, categories of, 83-85; teachers for, 27-28; curriculum and methods courses, proposal for, 42-44; in basic courses, 40-42; knowledge as source of objectives in, 83; pre-induction period, 28-29; role of college faculty in, 22; role of teachers in, 22

Clinical knowledge, academic knowledge, distinguished from, 64-65; definition of, 64; forms of, 90-94; skills, distinguished from, 66; uses of, 65-67

Colleges of education, approaches to changes in, 110-113; as non-professional, 11-12; compared to early medical schools, 17-18; criticisms of, 11; development of, 12-14; graduate schools, influence on, 13-14; restraining influences on, 17

Commonwealth Teacher Training Study, 1

Communication, as category of training, 85

Community, as laboratory, 23; nature of, 23-24

Competency-based movement, 3-4

Conant report on teacher education, 1-2, 4

Concepts, as expressed by definitions, 60-61; explication of as theory, 73-74; pedagogical instruction, lack of referents in, 61

Decisions, nature of, 76; types of, 76

Diagnosis, as area of training, 84

Doctoral programs, proposed changes in, 45-46

Education Commission of the States, 112

Elementary Teacher Education Models Project, 3

Evaluation, as training category, 85; in doctoral program, 46; of trainees, 44

Factual knowledge, 64

Follow-up of graduates, 20, 45

General Education, criticism of, 31-32

Generic knowledge, conditional form of, 93-94; content specific, distinguished from, 90-91, 104; definitional form of, 91-93; defective forms of, 94-95

Ideology, as theory, 72-73; criticisms of, 72; definition of, 72; usefulness of, 73

Illinois Normal University, 12

Johns Hopkins University, 13, 18, 56

Laboratory work, accompanied by seminar, 44; credit hours in, 40; in campus courses, 40-44; in training laboratory, 44-45

Management, as category of training, 85

National Education Association, report of National Commission on Teacher Education and Professional Standards, 2

National Institute of Education, 4

National Society for the Study of Education, Yearbook on teacher education, 3

Normal Schools, development into colleges, 13; professional character of, 12-13

Pedagogical education, admission to, 19; basic program, focus of, 40; clinical work in, 44-45; compared to early medical education, 17; doctoral programs in, proposed, 20; inservice, emphasis on criticized, 5; outline of basic program, 40-45; program development, steps in, 89-90; restraints upon, 3-4, 13-14; schema for, 19-20

Pedagogical knowledge, academic and clinical, 64-65; causal, 51-52; compared to early medical knowledge, 17; criticisms of, 50-55; content-specific, 101-104; definitional, 59-61; empirical principles in, 61-62; factual, 64; forms of, 59; generic, 90-94; generic, distinguished from specific, 90-91; nostrums and fictions as substitutes for, 55-56; rules, uses of questioned, 55; sources of, 49-50; single variable, uses of, 55

Planning, as domain of training, 85

Policy, as a set of rules, 76; relation to academic pedagogical knowledge, 75-77

Prepedagogical curriculum, 37

Preprofessional education, complementary component, 32-34; electives in, 37; elements of, 19; elementary teachers, program in, 36; secondary teachers, program in, 34-35

Principles, as approximations, 62; definition of, 61; prescriptions, different from, 61; prescriptive potentional of, 62; uses of definitions in, 61-62

Professional schools, characteristics of, 11

Professional wisdom, 49-50; 55

Research knowledge, use of by pedagogical faculties, 54; by practitioners, 53-54

Schema, for pedagogical education, 19

Skill, definition of, 66; distinguished from knowledge, 94; development of observation, 84

Specific knowledge, definition of, 90-91; dimensions of, 101-102; examples of, 102-104

Stanford University, 11, 86

Teacher Corps, 5-year cycle, 4; developer of preinduction period, 28; emphasis on community as a laboratory, 23-24

Teachers, academic preparation of, 31-32; as problem solvers, 7; as researchers, 20

Teaching, as natural form of behavior, 79-80; as showing, 79; direct, 96; didactic and heuristic forms of, 82; elements of, 80-82; evolution of, 80; Herbart's pattern of, 95; heuristics, its knowledge base, 96-97; heuristics, Kilpatrick's pattern of, 96; Morrison's pattern of didactic, 95

Theory, as descriptive principles, 74; as explanation, 70-72; as explication of concepts, 73-74; as ideology, 72-73; as intervening variables, 72; as prescriptive principles, 74; meanings of, 70; probable meaning of in pedagogy, 74-75

Training, based on research, 86; domains of, 83-85; materials of, 86-87; objectives of derived from knowledge, 83; uses of technology in, 86-87

Training laboratory, definition of, 24; induction of trainee, 44-45; governance of, 24; staffing of, 26-28

Tulane University, 11

United States Office of Education, National Survey, 1, 2

University of Chicago, 11

University of Georgia, 188; medical college announcement, 17

University of Texas, 12

University of Wisconsin, 12

Value knowledge, as concepts, 63; nature of, 62-64

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